



FRIDAY, APRIL 3.

## Train Accidents in February.

The following accidents are included in our record for the month of February:

## COLLISIONS.

## REAR.

3d, very early, freight on Wabash, St. Louis & Pacific ran into preceding freight stalled on grade near Chapin, Ill. Engines and several cars were wrecked and engineer hurt.

4th, freight on New York, Pennsylvania & Ohio ran into preceding freight near Akron, O., wrecking 9 cars.

6th, a. m., freight on Bennington & Rutland broke in two near South Wallingford, Vt., and the rear section ran into forward one, wrecking several cars.

8th, p. m., passenger train on Long Island road ran into the rear of a previous passenger train, which had been stopped in Brooklyn, N. Y., by the falling of a gate across the track. The engine and 1 car were badly damaged.

8th, p. m., freight on New York Central & Hudson River ran into rear of a passenger train near Bergen, N. Y., damaging 1 car.

7th, very early, freight on Pennsylvania Railroad ran into rear of a preceding freight which had been stopped on the bridge over the Raritan at New Brunswick, N. J., in order to take siding at East Brunswick. The end of the bridge on which the collision occurred was over a city street and the canal. The engine of the second train wrecked the caboose and 4 oil-tank cars and threw them from the bridge, some of them falling in the street and some on the ice in the canal. The oil caught fire, probably from the locomotive, and ran along the street and over the frozen canal in a stream, which quickly set fire to the neighboring buildings. Two large factories and several buildings were destroyed, causing a loss of over \$600,000, and making this one of the most expensive accidents on record. A brakeman went down with the oil cars and was killed. Probably there was no other place on the entire line of the Pennsylvania Railroad where this accident could have caused so much damage.

8th, a. m., freight on St. Louis, Iron Mountain & Southern ran into preceding freight near Bald Knob, Ark., damaging 18 cars.

9th, p. m., snow plow with two engines on Milwaukee & Northern ran into rear of a freight stalled in a snowbank near Green Bay, Wis., damaging several cars and injuring 2 trainmen.

9th, a. m., freight on Louisville & Nashville ran into preceding freight near Pass Christian, Miss., wrecking several cars.

10th, a. m., passenger train on Long Island Railroad ran into rear of a preceding passenger train in Brooklyn, N. Y., wrecking 1 car. There was a heavy fog at the time.

10th, a. m., passenger train on Chicago & Northwestern ran into preceding passenger stalled at a snowdrift at Indiana street in Chicago. Precisely similar accidents occurred the same morning to trains in snowdrifts at Evanston and at Lake Forest.

11th, a. m., passenger train on Chicago & Atlantic ran into rear of freight near Hammond, Ind., doing some damage.

11th, night, passenger train on Illinois Central ran over a misplaced switch and into some freight cars standing on a siding in Chicago. The engine and several cars were wrecked.

12th, a. m., a passenger train on Wabash, St. Louis & Pacific ran into engine standing on the track in East St. Louis, Ill., doing a little damage. The shock opened the throttle, and the engine started off at a high speed, with no one on board. She was chased and caught, after a very fast run, by a switch engine.

13th, a. m., passenger train on Pittsburgh, McKeesport & Youghiogheny road ran into a freight backing into a siding near McKeesport, Pa., damaging several cars.

15th, a. m., freight on Pennsylvania Railroad ran into preceding freight near Conemaugh, Pa., wrecking several cars; killing 2 drivers in the caboose, and injuring tramp who was stealing a ride.

16th, a. m., passenger train on Chicago, Burlington & Quincy ran over a misplaced switch and into yard engine on a siding in Galesburg, Ill., wrecking both engines and killing fireman.

16th, a. m., snow plow on Boston & Albany ran into rear of a freight at North Adams, Mass., damaging several cars and injuring 6 trainmen.

16th, a. m., passenger train on Pittsburgh, Fort Wayne & Chicago ran into rear of a local passenger train at 55th street in Chicago, damaging a car badly.

16th, p. m., passenger train on Chicago, Burlington & Quincy ran over a misplaced switch into a freight train on a siding at Downer's Grove, Ill., damaging engine, injuring fireman.

17th, early, freight on Grand Rapids & Indiana ran into preceding freight near Leroy, Mich., wrecking several cars.

18th, a. m., snow plow and 3 engines on New York Central ran into freight train stalled in a snowdrift at Stafford, N. Y., and engineer was slightly hurt.

18th, early, freight on Chicago, Burlington & Quincy ran into cars broken loose from preceding freight near Wedron, Ill., doing some damage.

18th, night, freight on Missouri Pacific ran into preceding freight near Butler, Mo., wrecking several cars.

21st, a. m., passenger train on Ohio & Mississippi ran over a misplaced switch at Delhi, O., and into local passenger train on a siding, wrecking two cars and injuring 4 trainmen and 19 passengers.

21st, p. m., passenger train on New York, West Shore & Buffalo ran into freight standing on track at Canajoharie, N. Y. The passenger train had three engines, and all three were piled up with a number of freight cars in a bad wreck. An engineer and a fireman were killed, and two trainmen hurt. It is said that the dispatcher had ordered the passenger train to take east-bound track, but failed to notify the freight.

22d, a. m., freight on Chicago, Burlington & Quincy ran into cars broken loose from preceding freight in Aurora, Ill.

23d, p. m., freight on Chicago, Burlington & Quincy ran into preceding freight near Ottumwa, Ia., damaging several cars.

23d, p. m., freight on Chicago, Burlington & Quincy ran into preceding freight at Roseville, Ill., damaging several cars.

A few minutes later, a passenger train which had been stopped by the wreck was run into by a following freight and a sleeping car was wrecked.

25th, evening, freight on Albany & Susquehanna ran into preceding freight at Quaker Street, N. Y., wrecking several cars, killing fireman and injuring engineer.

25th, a. m., freight on Illinois Central ran into rear of a

passenger train near Storm Lake, Ia., damaging a car and injuring 1 passenger.

25th, early, freight on Illinois Central ran into rear of a passenger train, which had been stopped near Chebanse, Ill., by a broken truck. The rear car was wrecked, 1 passenger killed, a porter and 7 passengers injured.

26th, a. m., freight on Lake Shore & Michigan Southern ran into preceding freight near Goshen, wrecking several cars.

26th, a. m., freight on New York & Hudson River ran into preceding freight near Port Byron, N. Y., damaging several cars.

28th, p. m., freight on Corning, Cowanesque & Tioga into section broken loose from preceding freight near Tioga, Pa., extra following first train being so close that the flag was not in time to stop it. The shock exploded a car-load of blasting powder on first train, causing an explosion which completely destroyed engine and 17 cars, and was felt for miles around. The trainmen all jumped and escaped by lying flat in the ditch.

## BUTTING.

1st, night, butting collision between two freights on Alabama Great Southern near Trussville, Ala., wrecked both engines and a number of cars and injured an engineer. The accident was caused by misunderstanding of orders.

1st, a. m., butting collision between two freight trains on New York, Pennsylvania & Ohio near Kent, O., wrecked both engines and a number of cars. Several cars were burned.

2d, a. m., butting collision between two freights on Fall Brook Coal Co.'s road near Painted Post, N. Y., wrecked both engines and 7 cars, and injured 1 trainman. The accident was caused by misunderstanding of orders.

3d, night, butting collision between freight and wild engine on East Tennessee, Virginia & Georgia near McDonough, Ga., wrecked both engines and 5 cars; the engineer was hurt and the fireman and a brakeman killed.

9th, night, butting collision between two freight trains on Lake Erie & Western road near Arrowsmith, Ill., wrecked 3 engines. It was snowing hard at the time.

9th, a. m., butting collision between two passenger trains on Chicago & Northwestern in Chicago, damaging both engines.

10th, p. m., butting collision between two freight trains on New York Central & Hudson River in Buffalo, N. Y., wrecked both engines and injured two trainmen. It was snowing hard at the time.

11th, a. m., butting collision between two passenger trains on Illinois Central, in Chicago, damaged both engines slightly.

15th, a. m., butting collision between two freights on Cleveland, Columbus, Cincinnati & Indianapolis, near Shelby, O., wrecked both engines and several cars. The collision was caused by a misunderstanding of orders.

16th, a. m., butting collision between two freight trains on East Tennessee, Virginia & Georgia, near Chattanooga, Tenn., wrecked both engines and injured two trainmen badly. The accident was caused by mistake in wording of a dispatch.

19th, night, butting collision between passenger and freight train on Baltimore & Potomac road at Four Mile Run, Va., wrecked both engines and several cars. The wreck caught fire, and several freight and 2 postal cars were entirely destroyed, the postal cars being heavily loaded with the through mail from the South. Five trainmen were killed; 2 other trainmen and 5 mail clerks were injured. It is said that the postal cars contained a very large registered mail, and nearly \$200,000 in money was in the express car and was destroyed.

19th, night, butting collision between a passenger and freight train on Atlantic & Pacific road near Blue Water, Ariz., wrecked both engines and several cars and killed 2 passengers.

20th, night, butting collision between two freights on Baltimore & Ohio near Pennsboro, W. Va., wrecked both engines and 20 cars, killed 3 trainmen and injured 2 others. One of the trains disregarded orders to stop at Pennsboro.

25th, p. m., 2 snow plows on Burlington, Cedar Rapids & Northern had a butting collision near Northwood, Ia., and were badly wrecked.

26th, p. m., butting collision between two freight engines on Wheeling & Lake Erie near Toledo, O., damaged both engines badly.

26th, early, butting collision between two freights on Intercolonial road near Assonetquagan, N. B., damaged both engines. It is said that orders had been sent to one of the trains to stop at Causapsac, but the engineer and fireman were both asleep and did not notice the operator's signal to stop. The fireman was killed and the engineer badly hurt.

27th, early, butting collision between passenger and freight train on Baltimore & Ohio near Parkersburg, W. Va., damaged both engines slightly. The passenger train was a special, carrying Vice-President Hendricks to Washington.

28th, a. m., butting collision between passenger and freight train on Chicago & Grand Trunk near Charlotte, Mich., wrecked both engines and injured a trainman.

28th, night, butting collision between two freights on Rome, Watertown & Ogdensburg near De Kalb Junction, N. Y., wrecked both engines and several cars. One of the trains was running against orders.

28th, night, butting collision between two freights on Columbus, Hocking Valley & Toledo, near Morrow, O., wrecked both engines and several cars, killing a brakeman.

28th, night, butting collision between two freight trains on Flint & Pere Marquette, near Flint, Mich., wrecked both engines and several cars.

## CROSSING.

6th, a. m., passenger train on Philadelphia & Reading ran into Lehigh & Susquehanna passenger train at Drifton Junction, Pa., damaging both engines.

14th, a. m., Michigan Central passenger train ran into New York Central passenger train at Buffalo, N. Y., damaging both engines.

## DERAILMENTS.

## BROKEN RAIL.

3d, a. m., passenger train on Dayton & Ironton was derailed near Beaver, O., by broken rail, and a trainman and 5 passengers were hurt.

6th, a. m., passenger train on Florida Railway & Navigation Co. road struck a broken rail near Quincy, Fla., and a sleeping-car was thrown from the car and upset, injuring 6 passengers.

6th, a. m., passenger train on Rochester & Pittsburgh was derailed near Machias, N. Y., by broken rail.

8th, evening, passenger train on Chicago, Burlington & Quincy struck a broken rail near Creston, Ia., and 2 cars were thrown from the track. The cars ran upon the ties on a small bridge, and then upset and fell upon the ice below. Both cars were completely wrecked, killing 7 passengers and injuring 2 trainmen and 20 passengers.

9th, night, freight on Chicago, Milwaukee & St. Paul was derailed near Rock Island, Ill., by a broken rail.

10th, a. m., passenger train on Chicago, Milwaukee & St. Paul was derailed near Port Byron, Ill., by a broken rail.

10th, a. m., passenger train on Wabash, St. Louis & Pacific was derailed near Mitchell, Ill., by broken rail.

10th, night, passenger train on Cleveland, Columbus, Cin-

cinnati & Indianapolis was thrown from the track near Bellefontaine, O., by broken rail.

11th, night, freight on Indianapolis & Vincennes was derailed near Indianapolis, Ind., by broken rail.

12th, a. m., freight on Washington, Ohio & Western was thrown from the track near Guilford, Va., by broken rail, and 4 cars went into a ditch. The conductor was killed.

14th, night, freight on East Tennessee, Virginia & Georgia was thrown from the track near McRae, Ga., by broken rail.

14th, a. m., passenger train on Louisville, New Albany & Chicago was thrown from the track near Rensselaer, Ind., by broken rail; 2 cars were upset and 12 passengers hurt.

15th, night, freight on Indianapolis & St. Louis was derailed at Bunker Hill, Ind., by broken rail.

16th, evening, passenger train on Cleveland, Columbus, Cincinnati & Indianapolis was derailed near Galion, O., by broken rail; 5 passengers slightly hurt.

18th, night, freight on Missouri Pacific was derailed near New Palestine, Mo., by broken rail.

19th, p. m., several cars of freight on Ohio & Mississippi were derailed near Odin, Ill., by broken rail.

19th, night, passenger train on Wabash, St. Louis & Pacific struck a broken rail near North Vernon, Ind., and a sleeping car was thrown down a bank and wrecked, killing porter and 2 passengers, and injuring the conductor and another passenger.

21st, evening, passenger train on Chicago, Burlington & Quincy was derailed near Chariton, Ia., by broken rail, injuring 2 trainmen and 4 passengers.

21st, a. m., passenger train on Cleveland, Columbus, Cincinnati & Indianapolis struck a broken rail near Lockland, O., and 3 cars were derailed, injuring 3 passengers seriously and 6 slightly.

21st, night, freight on Hannibal & St. Joseph was derailed near Beaver, Mo., by broken rail.

22d, night, freight on Minneapolis & St. Louis was derailed near Badger, Ia., by broken rail.

23d, night, freight on Pittsburgh, Fort Wayne & Chicago was derailed near Mansfield, O., by broken rail.

23d, a. m., passenger train on Lake Erie & Western was derailed near Muncie, Ind., by broken rail. The conductor was hurt.

23d, a. m., freight on Wabash, St. Louis & Pacific was derailed near Rich Valley, Ind., by broken rail.

24th, a. m., passenger train on Erie & Pittsburgh was derailed near Erie, Pa., by broken rail; a passenger was killed, and a brakeman and 7 passengers hurt.

24th, night, freight on New York, Pennsylvania & Ohio was derailed near Mansfield, O., by broken rail; a brakeman was killed and another hurt.

25th, early, passenger train on Burlington, Cedar Rapids & Northern was derailed near Albert Lea, Minn., by broken rail.

25th, a. m., freight on Bradford, Bordell & Kinzua was derailed near Norton, N. Y., by broken rail, and 3 trainmen were hurt.

25th, night, freight on Fitchburg road was derailed near Belmont, Mass., by broken rail.

26th, a. m., passenger train on West Shore road was derailed near Unionville, N. Y., by broken rail.

27th, a. m., passenger train on Wabash, St. Louis & Pacific was derailed near Loveland, O., by broken rail.

27th, night, freight on Cleveland & Pittsburgh was derailed near Macedonia, O., by a broken rail.

## BROKEN OR DEFECTIVE FROG.

12th, night, freight on New York, West Shore & Buffalo was thrown from the track at Genesee Junction, N. Y., by broken frog.

13th, a. m., passenger train on Cincinnati, Washington & Baltimore was derailed at Loveland, O., by broken frog. The 3 rear cars left the track and were thrown over against some freight cars on a siding and badly wrecked. A passenger was hurt.

14th, very early, engine of passenger train on Shenandoah Valley ran off the track at Rippon, Va., at a frog. The same accident was repeated almost without variation to the same train 15th, early, 16th early. It is supposed to have been caused by a defective frog.

23d, early, freight on New York Central & Hudson River was derailed near Sing Sing, N. Y., by broken frog and 10 cars damaged.

## BROKEN SWITCH-ROD.

3d, night, freight on Indiana, Bloomington & Western was derailed at Messick, Ind., by broken switch-rod.

4th, a. m., passenger train on Pennsylvania Railroad was derailed in Philadelphia by broken switch-rod.

16th, a. m., passenger train on New York, Lake Erie & Western was derailed from the track at Dyke, N. Y., by broken switch-rod.

## BROKEN BRIDGE.

3d, night, 2 cars of passenger train on Wabash, St. Louis & Pacific went through a bridge near Worth, Ill., injuring 3 passengers.

10th, a. m., freight on the Missouri, Kansas & Texas broke through a bridge near Dallas, Tex., and 3 cars were wrecked.

12th, very early, freight on Central of Georgia broke through trestle bridge near Millen, Ga., and 8 cars went into the creek and were wrecked.

## SPREADING OF RAILS.

3d, a. m., freight on Vicksburg & Meridian was derailed near Armistead, Miss., by spreading of the rails.

4th, a. m., car of passenger train on Evansville & Terre Haute road was derailed near Vincennes, Ind., by spreading of the rails.

4th, a. m., car of passenger train on Buffalo, New York & Philadelphia was thrown from the track near Cuba, N. Y., by the rails spreading.

9th, a. m., freight on Augusta & Knoxville was derailed near Morris, S. C., by spreading of the rails. The conductor was killed and a brakeman hurt.

12th, a. m., passenger train on New York Central & Hudson River was thrown from the track near Richville, N. Y., by spreading of the rails.

16th, a. m., freight on Austin & Northwestern was derailed near Liberty Hill, Tex., by spreading of the rails.

18th, night, passenger train on Grand Rapids & Indiana was derailed near Winchester, Ind., by spreading of the rails.

23d, a. m., passenger train on Chicago, Burlington & Quincy was derailed near Indianola, Ia., by spreading of the rails. Two trainmen and 6 passengers were hurt.

24th, a. m., freight on Wabash, St. Louis & Pacific was derailed near Grayville, Ill., by spreading of the rails. A brakeman was hurt.

## BROKEN WHEEL.

1st, night, passenger train on Memphis & Charleston was

derailed near Brownsville, Tenn., by broken wheel, and baggage car upset, injuring 2 trainmen.

2d, a. m., passenger train on Pennsylvania Railroad was derailed near Uniontown, Pa., by broken wheel; 3 trainmen slightly hurt.

4th, a. m., car of freight train on Elmira, Cortland & Northern was derailed in Ithaca, N. Y., by broken wheel.

5th, a. m., freight on New York, West Shore & Buffalo was derailed at Black Rock, N. Y., by broken wheel.

6th, a. m., several cars of freight on New York Central & Hudson River were derailed near St. Johnsville, N. Y., by broken wheel.

10th, a. m., engine of passenger train on New York, Ontario & Western was thrown from the track on the high trestle over Lyon Brook, N. Y., by broken wheel under the truck, but the guard-rails kept it from leaving the bridge, which is 165 ft. high.

12th, night, passenger train on New York, West Shore & Buffalo was derailed near Nyack Turnpike, N. Y., by broken tire on a locomotive driving-wheel.

12th, night, engine of freight train on Louisville, New Albany & Chicago was derailed near Mitchell, Ind., by broken wheel. The engineer was hurt.

14th, night, 16 cars of freight on Pennsylvania Railroad were derailed near Spruce Creek, Pa., by broken wheel.

15th, a. m., 2 cars of freight on New York, Lake Erie & Western were derailed near Alleghany, Pa., by broken wheel.

17th, noon, freight on Elmira, Cortland & Northern was derailed near Swartwood, N. Y., by broken wheel and 19 cars were piled up in a very bad wreck.

18th, night, 10 cars of freight on New York, Lake Erie & Western were derailed at Belvidere, N. Y., by broken wheel.

20th, p. m., several cars of coal train on New York Central & Hudson River were derailed near Fairport, N. Y., by broken wheel.

21st, very early, 4 cars of stock train on Chicago & Northwestern were derailed at Prospect Park, Ill., by broken wheel.

23d, a. m., several cars of freight train on Northern Central were derailed near Grover, Pa., by broken wheel.

#### BROKEN AXLE.

2d, a. m., freight on Cincinnati, Washington & Baltimore was derailed near Wellston, O., by a broken axle.

21st, a. m., coal train on Huntingdon & Broad Top road was derailed near Huntingdon, Pa., by broken axle; 2 brakemen were hurt.

21st, a. m., 10 cars of freight on Pennsylvania Railroad were thrown from the track at Metuchen, N. J., by a broken axle and badly wrecked, injuring a brakeman.

23d, p. m., freight on Chicago, Burlington & Quincy was derailed near Streator, Ill., by broken axle.

24th, night, five cars of freight on Housatonic road were derailed and wrecked near New Milford, Conn., by broken axle. A brakeman was hurt.

#### BROKEN TRUCK.

18th, night, freight on Jeffersonville, Madison & Indianapolis was derailed near Austin, Ind., by broken truck.

25th, night, freight on Illinois Central was derailed near Manson, Ia., by broken truck under the tender.

#### BROKEN DRAW-BAR.

24th, p. m., tender of passenger train on New York, New Haven & Hartford was derailed near Darien, Conn., by the coupling breaking and falling on the track.

#### BROKEN BRAKE-BEAM.

26th, a. m., freight on Rome, Watertown & Ogdensburg was derailed near Greece, N. Y., by a broken brake-beam falling on the track.

#### ACCIDENTAL OBSTRUCTION.

17th, a. m., passenger train on Long Island road struck a wagon at a road crossing near Babylon, N. Y., and 2 cars were thrown from the track.

24th, a. m., passenger train on Texas & Pacific struck a tree blown down across the track near Sherman, Tex., and the locomotive and 3 cars were thrown from the track and wrecked, killing the engineer, injuring another trainman and 2 passengers.

24th, p. m., freight on Chicago & Northwestern was thrown from the track near Toledo, Ia., by a draw-head, which had been dropped on the track by a preceding train. The engine upset, injuring the fireman.

#### LAND-SLIDES AND WASH-OUTS.

6th, a. m., passenger train on the Oregon Railway & Navigation Co. road ran into a land-slide near Bonneville, Or., damaging several cars.

16th, a. m., passenger train on Philadelphia & Reading ran into a washout at Langhorne, Pa., and 2 cars went down, injuring brakeman and 3 passengers slightly.

#### SNOW.

5th, a. m., freight on New York Central & Hudson River was derailed near Penfield, N. Y., in a snow bank.

10th, p. m., freight on Chicago & Northwestern ran off the track at Goose Lake, Mich., in a snowdrift.

11th, a. m., engine of passenger train on Chateaugay road was thrown from the track near Dannemora, N. Y., by ice packed down on the rails. The engine upset, killing the fireman.

11th, p. m., passenger train on Detroit, Lansing & Northern ran off the track in a snowdrift near Trowbridge, Mich.; 3 passengers were slightly hurt.

11th, night, freight on Chicago, St. Louis & Pittsburgh was derailed in a snowbank near Logansport, Ind.

12th, a. m., engine of freight train on Chicago & Northwestern ran off the track in a snowdrift near Cascade, Mich.

12th, p. m., snow plow and 3 engines on Michigan & Ohio ran off the track in a snowdrift near Marshall, Mich.; 2 engines upset and 2 trainmen were badly hurt.

13th, a. m., snow plow and 2 engines on Mississquoi road ran off the track near St. Albans, Vt., in a snowdrift.

13th, a. m., rear car of passenger train on Lackawanna & Pittsburgh road was thrown from the track near Richburg, N. Y., by ice at a road crossing. A brakeman was thrown from a car and hurt.

13th, night, engine of passenger train on New York Central & Hudson River ran off the track in a snowbank in Rochester, N. Y.

14th, a. m., freight on Elmira, Cortland & Northern was derailed in snowdrift near Horseheads, N. Y., and about the same time another freight near De Ruyter.

16th, p. m., coal train on Delaware, Lackawanna & Western ran off the track in a snowdrift near Chadwick, N. Y. About the same time a freight went off in the snow at Richfield Junction, and another coal train at Saugus.

16th, p. m., several cars of freight on Boston & Albany were derailed in a snowdrift near Becket, Mass.

16th, night, passenger train on Michigan & Ohio ran off the track near Marshall, Mich., in a snowdrift.

18th, a. m., passenger train on Port Jervis & Monticello ran off the track in a snowdrift near Rose's Point, N. Y.

20th, night, coal train on New York, Lake Erie & Western was derailed at Mongaup, N. Y., by ice packed down in the rails.

26th, very early, passenger car on New York Central &

Hudson River was derailed in Buffalo, N. Y., by ice on the rails.

#### WIND.

4th, p. m., passenger on Union Pacific was blown from the track near Georgetown, Colo., in a cyclone. The whole train was upset and wrecked, injuring 3 trainmen and 18 passengers.

#### MISPLACED SWITCH.

1st, midnight, passenger train on Cincinnati, Indianapolis, St. Louis & Chicago was thrown from the track in Indianapolis, Ind., by misplaced switch, and engine was badly damaged.

4th, p. m., passenger train on Cleveland, Columbus, Cincinnati & Indianapolis ran over a misplaced switch into a gravel bank near the track in Dayton, O. The engine was wrecked, the engineer and fireman hurt.

2d, a. m., car of passenger train on New York, Lake Erie & Western was thrown from the track in Jersey City, N. J., by misplaced switch.

11th, very early, passenger train on Louisville, New Albany & Chicago was derailed and wrecked at Bloomington, Ind., by misplaced switch. A brakeman and 2 passengers were hurt.

11th, night, freight on Old Colony road was thrown from the track in Boston by an open switch. The engine and 10 cars left the track, several of them ran into a field some distance away. The switch, it is said, was turned when the train was so close that, although the proper signals were displayed, it was impossible to stop.

18th, a. m., freight on Louisville & Nashville was derailed at Penbroke, Ky., by a misplaced switch; 3 trainmen were hurt.

#### MALICIOUSLY CAUSED.

11th, night, freight on the Texas Pacific was thrown from the track near Marthaville, La., where a rail had been removed from the track by persons unknown, it is supposed with the intention of wrecking the passenger train.

13th, a. m., passenger train on Atchison, Topeka & Santa Fe was derailed in Lawrence, Kan., by a switch which had been purposely misplaced by some tramps who had been put off the train.

16th, night, freight on Alabama Great Southern was derailed at Carthage, Ala., by a switch, which is supposed to have been purposely misplaced by tramps who had been put off a preceding train.

17th, night, freight on Texas & Pacific was wrecked near Wayne, Tex., where a rail had been removed from the track by train wrecks.

19th, a. m., passenger train on International & Great Northern was thrown from the track near Round Rock, Tex., where a large wagon wheel had been fastened down in a cattle guard.

#### UNEXPLAINED.

3d, a. m., freight on Chicago & Northwestern was thrown from the track near Jackson Tunnel, Mich., blockading the road several hours.

3d, night, passenger train on Cleveland, Columbus, Cincinnati & Indianapolis ran off the track near Marion, O., doing some damage.

5th, night, several cars of freight on New York, Lake Erie & Western were derailed near Sloatsburg, N. Y.

5th, night, several cars of freight on Gulf, Colorado & Santa Fe were derailed and wrecked near Cleburne, Tex.

5th, a. m., engine and several cars of train on Detroit, Mackinac & Marquette were derailed near St. Ignace, Mich., blockading the road several hours.

6th, night, freight train on Toledo, Cincinnati & St. Louis ran off the track on a trestle bridge in Cincinnati, O., and the engine and 6 cars fell to the ground below and were badly wrecked. The fireman was killed and the engineer badly hurt.

10th, a. m., freight on International & Great Northern was derailed near Palestine, Tex., and engineer and fireman hurt.

11th, early, engine of freight on Chicago, Rock Island & Pacific jumped the track in Chicago, Ill., and ran into a brick wall.

12th, p. m., engine and several cars of freight on Western & Atlantic ran off the track near Dalton, Ga., blocking the road all night.

12th, p. m., engine and snow plow on Chicago & Northwestern ran off the track near Cascade, Mich.

12th, night, freight train on Georgia road was derailed in Atlanta, Ga.

14th, evening, 2 cars of freight on Pittsburgh, Cincinnati & St. Louis jumped the track near Columbus, O. The conductor was caught under the caboose and killed.

19th, a. m., engine on Delaware, Lackawanna & Western was derailed near Lester, N. Y., and upset.

19th, night, passenger train on New York, West Shore & Buffalo was derailed near Coeymans, N. Y.

21st, a. m., passenger train on Lake Erie & Western was derailed near Arrowsmith, Ill., injuring 7 passengers.

24th, p. m., several cars of freight on Bridge Railroad, in East St. Louis, Ill., were derailed.

24th, a. m., passenger train on Missouri Pacific was derailed near Wellington, Mo.

24th, night, freight on Flint & Pere Marquette was derailed near Flint, Mich., wrecking several cars.

26th, a. m., several cars of freight on New York, West Shore & Buffalo were derailed near Tompkin's Cove, N. Y.

26th, evening, passenger on New York, Lake Erie & Western was derailed near Attica, N. Y.

#### OTHER ACCIDENTS.

#### BOILER EXPLOSIONS.

12th, night, engine of passenger train on Wabash, St. Louis & Pacific blew off the dome on the boiler while stopping at Forrest, Ill. The dome in falling went completely through a car loaded with corn standing on a siding. The force of the explosion was entirely upward, and the men on the engine were not injured.

20th, a. m., engine of passenger train on New York Central & Hudson River burst several flues when near Fairport, N. Y., delaying trains 2 hours.

20th, p. m., locomotive of a passenger train on St. Louis, Iron Mountain & Southern exploded its boiler when near Poplar Bluff, Mo. The engine was completely wrecked, the engineer and fireman killed. The explosion was a remarkable one, as it occurred when the engine was running at full speed.

#### BROKEN PARALLEL-ROD.

5th, a. m., locomotive of passenger train broke a parallel rod when near Protection, N. Y., Buffalo, New York & Philadelphia. The loose end tore a hole in the boiler, letting out all the steam.

9th, a. m., engine of passenger train on New York, Lake Erie & Western broke a parallel rod when near Lordville, N. Y., and the engine was badly damaged.

9th, a. m., engine of passenger train on Chicago, Rock Island & Pacific broke parallel rod when near Elden, Ia.

15th, p. m., engine of passenger train on Cincinnati, Hamilton & Dayton broke a parallel rod when near Connersville, Ind., and was badly damaged.

19th, early, engine of passenger train on New York, Lake

Erie & Western broke a parallel rod when near Swains, N. Y.

20th, a. m., engine of passenger train on New York Central & Hudson River broke a parallel rod when in the tunnel in New York City, blocking the track some time.

20th, night, engine of passenger train on New York, Lake Erie & Western broke a parallel rod when near Lackawaxen, Pa., and the broken end tore a hole in the boiler, allowing all the steam to escape.

21st, night, engine of passenger train on Wabash, St. Louis & Pacific broke a parallel rod when near Honey Bend, Ill. The engine was damaged and the fireman thrown out of the cab and injured.

22d, a. m., engine of passenger train on Pittsburgh, Cincinnati & St. Louis broke a parallel rod when near Cincinnati, O., and was badly damaged. The engineer jumped and was killed.

28th, a. m., engine of freight train on New York, Lake Erie & Western broke a parallel rod when near Ramsey, N. Y., and the cab was pretty well broken up.

#### BROKEN WHEELS.

6th, a. m., a wheel broke under a passenger car on New York Central & Hudson River near Bergen, N. Y., delaying the train some time. The car did not leave the track.

13th, evening, a wheel broke under a passenger car on the Lake Shore & Michigan Southern near North East, Pa. The car ran nearly a mile, but did not leave the track.

14th, a. m., engine of passenger train on New York, West Shore & Buffalo broke the tire on a driving wheel when near Mont Moor, N. Y., delaying the train some time.

26th, noon, wheel broke on passenger car on Lake Shore & Michigan Southern near Westfield, N. Y. The car did not leave the track, but the train was delayed some time.

#### BROKEN TRUCK.

25th, early, passenger train on Illinois Central broke a truck under a passenger car when near Chebanse, Ill., but the car did not leave the track.

#### CAR BURNED.

17th, p. m., car in a passenger train on Baltimore & Ohio caught fire when near Sir John's Run, Md., and was destroyed.

#### SUMMARY.

This is a total of 216 accidents, in which 44 persons were killed and 250 injured; an increase, as compared with February, 1884, of 106 accidents, 22 killed and 109 hurt. A statement of the totals and averages will be found on another page.

The two months of the current year show a total of 361 accidents, 68 killed and 441 injured; an average of 180 accidents, 34 killed and 220 injured per month.

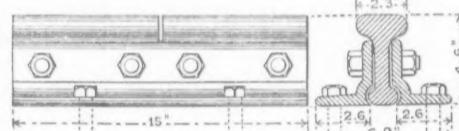
#### Contributions.

##### An Early Angle-Bar.

PITTSBURGH, Pa., March 20, 1885.

TO THE EDITOR OF THE RAILROAD GAZETTE:

I send you herewith a plan, side view and cross-section of a



form of an angle-bar in use on the Royal Prussian Government Railroad of Westphalia, Germany, over 30 years ago.

EMILE LOW.

[Although this is in form an angle-bar, it is not such in intent, being rather a mere substitute in wrought-iron for the cast-iron chair usual with, and essential to, double-headed rails. The form of the angle-bar seems singularly ill-designed for supporting the rail.—EDITOR RAILROAD GAZETTE.]

#### Light Railroads.

TRUMANSBURG, N. Y., March 18, 1885.

TO THE EDITOR OF THE RAILROAD GAZETTE:

Mr. Scott's communication in the *Gazette* of March 13, requesting information relative to the use of very light rails for railroad purposes and proposing to use many cross-ties instead of heavy rails, appears to be something in the proper direction, but he must become more radical than he now proposes. He should bear in mind that there are in North America a great many railroads that do not pay as an investment, but as a matter of convenience and as a luxury, are very acceptable to their local patrons, who generally have invested but little in them. They have been tolerated in hopes of a better fate, but many will be abandoned. Now let Mr. Scott go to work—he has a clear field for his operations—lay out his road, grade it, and where he finds clay liable to become muddy, cover it with his railroad ties, and where it is very sandy do the same. Let him lay out no money at all for railroad iron, light or heavy, except for *horse shoes*, for horses and mules must be kept shod, even in North Carolina, if they are to do much work. Then to give the conveniences that a railroad furnishes, put up sheds at each terminus and call them the *roundhouse*. If he finds a blacksmith shop on the line or builds one, call that the *repair shop*; get up something to name the eating house (have no iron-clad sandwiches about it), have rooms at prominent places on the line where people can gather in and get the news, smoke, expectorate, and extract nicotine, call that the *depot*. Now his road is ready for the trains and every farmer has his train ready for the road; he can go and come as he pleases. Call them the *freight trains*. The freighters with their six-mule teams, call the express freight; the passengers and mail bags in a light wagon with a span of horses, call the express passenger, and the occasional extras with good steppers call the *fl*

is important the road should be kept in repair; have no toll-gates, but invest safely a part of the original sum and use the income for that purpose. As to raising the funds to begin the enterprise, the plans can be furnished by others as well as by your humble servant,

H. A. H.

**Experience with Light Rails.**

PORTAGE LA PRAIRIE, Man., March 20, 1885.  
TO THE EDITOR OF THE RAILROAD GAZETTE:

In addition to the able theoretical argument advanced in your leading editorial last week against Mr. Scott's proposal to substitute light rails for the usual 56 lbs rail on roads doing a local business, I would like to give the following brief notes of my experience with light rails this past winter. I will take the months of January and February, as exhibiting the greatest and severest changes in temperature in this latitude, the variation being from freezing point to 50 degrees below zero.

On a road 78 miles long we have 33 miles of 40 lbs. per yard Rhymney steel, of exceedingly good quality, and 45 miles of 56 lbs per yard steel. The light steel is placed on ties 3,000 to the mile; the heavy steel on 2,700 ties to the mile. Fifteen miles of the light steel is on a good bed of gravel ballast; the remainder and nearly all of the heavy steel is on the ordinary prairie loam. The traffic is light, being about one train per day each way.

On the light steel we have had 18 broken rails and two broken frogs, about evenly divided over the gravel and loam ballast.

On the heavy steel we have not had one broken rail or frog.

The light rails have had three years' wear and the heavy rails two years'. We intend this year to substitute the 56 lbs. steel for the 40 lbs.

**TRACK.**

[Considering that the relative stiffness of these rails is, according to the tables presented, as 1 to 1.96, and their ultimate strength as 1 to 1.66, there is nothing surprising in these statements. Nevertheless, there is another side to this question for roads of very light traffic, which was not fully considered in that article.

—EDITOR RAILROAD GAZETTE.]

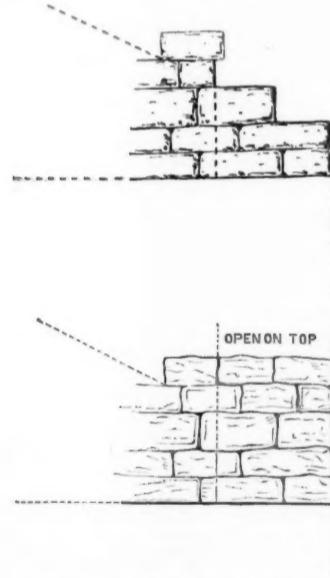
**The Form of Culverts.**

RICHMOND, Va., March 19, 1885.

TO THE EDITOR OF THE RAILROAD GAZETTE:

You are correct in thinking that my comparison of the forms of culverts in my letter published in the *Railroad Gazette* of March 6 was meant to apply to the semi-circle without abutments, and the segment with or without abutments. What I contend is simply this: If there be no great difference between arched and straight work, the semi-circle springing from the foundation floor is the better form.

May I ask you to correct the outline showing the side elevation of the end of a box culvert (which I did not give in my former sketch) at the upper or inlet end from the stepped finish, like this:



The object being to catch drift outside, if any should come down, leaving in that case an opening on top, forming a well into which the water falls if unable to pass under the floating drift.

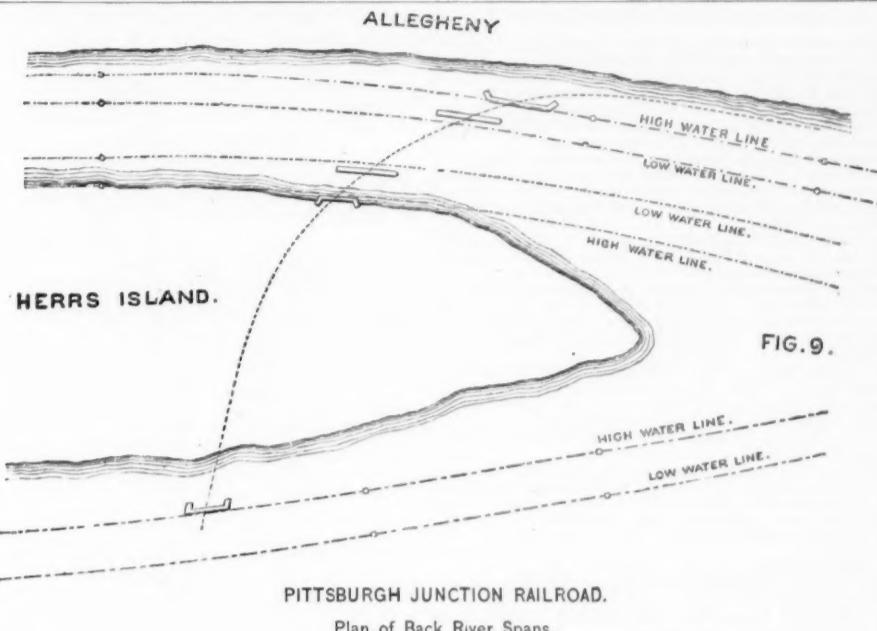
E. T. D. MYERS.

**Bridges of Pittsburgh Junction Railroad.**

We complete herewith (see large insert) our illustrations of the bridging on this line.

**Main Channel Spans.**—Fig. 6 gives the general elevation and plan of these spans, showing the arrangement of the panels and the top and bottom lateral systems. Originally it was intended to have four equal spans, 210 ft. centre to centre of piers, across the main channel between Pittsburgh and Herr's Island. To meet the opposition of the river men in reference to the location of the west pier, it was changed 40 ft. further west, thus making two spans of 210 ft., one of 250 ft. and one of 170 ft.

All the piers and abutments were founded upon piles, contrary to the precedent of other bridges built in this neighborhood. A consideration of the present condition of some of the existing structures and the failure of others on this river,



PITTSBURGH JUNCTION RAILROAD.

Plan of Back River Spans.

led to the selection of a more secure foundation than simple cribbing.

The masonry was all built by Messrs. Shaw, Stearns & Norris, contractors for the tunnels, grading and masonry.

The trusses were 29 ft. centre to centre, and have a skew of 10 ft. 9 1/4 in. in this width. The length of panels and inclination of the end-posts were selected to make all the floor-beams square with the line of the trusses. The floor-beams are 5 ft. deep and rest at their ends in pockets built on the sides of the vertical posts.

Fig. 7 shows the cross-section of span 4, which is the general form adopted for all the spans excepting span 3. The latter has a double set of top struts with diagonal braces.

Fig. 8 gives on an enlarged scale the floor-beam pocket and method of attaching the lower laterals.

The posts are formed of channels with the flanges turned in, to permit the formation of the pockets for the floor-beams.

The end-posts and top chords are formed of plates and angles. The end-posts as well as the intermediate ones are made pin-connected at both ends.

The stringers are 4 ft. deep for the 250 ft. span, and 3 ft. 6 in. deep for the others. They are riveted to the webs of the cross floor-beams. All the stringers are continuous over the piers and abutments, one end resting in an expansion pocket. The lower lateral system is formed of angles riveted to the bottom of the stringers at their crossings, and attached to the posts and floor-beams by turned bolts in reamed holes.

The top lateral system consists of the transverse struts, as shown on fig. 7, and diagonal rods connecting to the top chord by lugs riveted to the chord.

Between the end-posts there is a latticed girder portal, as deep as is permitted by the required head room, 20 ft.

The diagonal links in span No. 3 are made in two lengths, the point of junction being supported by a tie-rod connecting to the adjacent chord pins. The four spans contain about 1,250 tons of iron.

**Back Channel Spans.**—These spans cross the back channel of the Allegheny River, between Herr's Island and the Allegheny bank. Fig. 9 gives a plat of the location, showing the actual banks and the high and low-water lines as established by the United States Government engineers. The necessities of the location made this crossing an especially interesting one. The abutments were to be placed on the high-water lines, and the low-water channel spanned with a single span.

To connect the tangent down Thirty-third street and over the main channel spans with the tangent on the Allegany enbankment (connection with Pittsburgh & Western Railroad) by the most economical crossing, led to the adoption of the line shown, which starts from each tangent with curves of 10°, which are compounded with a 7° curve over the low-water channel.

Fig. 10 shows the bridge crossing in detail. It was desired, in order to simplify the construction, to have the trusses of each span parallel and duplicates in general form, with the floor-beams at right angles to the trusses, as far as was practicable. The manner of accomplishing these points is clearly shown in figs. 10 and 11. The tracks over these spans descend westward on a grade of 0.57 per 100.

Span No. 5 is 96 ft. long, 10 ft. deep, with trusses 29 ft. 7 in. centre to centre. The form of the trusses is shown in fig. 13, and the manner of attaching the floor-beams to the vertical struts and of bracing the top chords is shown in fig. 14.

Span 6 is 218 ft. 3 1/2 in. centre to centre of end pins, with trusses 33 ft. deep placed 36 ft. 6 in. centre to centre to provide the proper clearance for the curved tracks. The trusses have a skew of about 65 ft. 6 in. in the width of the bridge.

To provide for the necessary stiffening of the ends of the top chords, in trusses so far apart and with such excessive skew, one end-post of each truss is made vertical and the other inclined, as shown in fig. 12. A stiffening portal 8 ft. 3 in. deep, with brackets under the ends, extends from the vertical end-post of each truss to the opposite vertical intermediate post, No. 5, of the other truss. A supplementary

strut is then carried from the top of the vertical end-post to the top of the inclined end-post of the other truss. In addition, each pair of intermediate posts is connected by deep struts similar to those shown in fig. 7 for the main channel spans. All these transverse struts and portals are stiffened at their centre by a line of longitudinal struts. The details of this span are similar to those for the main channel spans.

Span 7 is formed of two longitudinal plate girders 84 ft. long and 6 ft. deep, with cross-girders and stringers. These three spans contain about 520 tons of iron.

All the trusses described were built and erected by C. I. Shultz, of the Iron City Bridge Works, Pittsburgh, Pa.

They are designed to carry the heaviest traffic, two Consolidation engines followed by trains weighing 3,000 lbs. per lineal foot of track.

The general designs, full working plans and specifications for all the bridges and trestle-work were prepared by Mr. Theodore Cooper, No. 35 Broadway, New York, Consulting Engineer for the railroad company.

**National Association of General Passengers & Ticket Agents.**

The convention of this association at New Orleans, was called to order at 11 a.m., March 17, by Vice-President Taylor. A letter was received from President Tuttle, stating his inability to be present. A call of the roll showed 70 members present of the total of 163. The following members have joined since the last meeting: W. T. Block, Wis., Ia. & Neb.; W. H. Bidgood, New York & Sea Beach; E. S. Edger, B. & N. W., and B. & W.; H. J. Falkenbach, Col., Hocking Valley & Toledo; E. T. Charlton, Port Royal & Augusta; C. G. Cram, Connecticut River; J. A. McDuffie, Brunswick & Western; J. P. Nourse, Central Iowa; J. M. O'Boyle, Toledo & Indianapolis; J. E. Hannegan, Burl., Cedar Rap. & Northern; R. S. Hair, Chic. & N. W.; C. C. Jenkins, Pontiac, Oxford & Pt. Austin; B. W. McCullough, Mo. P., Southern Division.

Special credentials for this meeting were presented as follows:

By M. L. Ettinger, representing the Chicago, Burlington & Quincy; by J. W. Coleman, representing the Illinois Central; by D. J. Pease, representing the Chicago, St. Paul, Minn. & Omaha; by C. O. Scull, representing the Pittsburgh, Cincinnati & St. Louis; by J. M. Chesbrough, representing the Vandalia Line; by J. C. Lanus, representing the Baltimore & Ohio.

The next order of business was the selection of the next place of meeting, and New York was chosen.

The committee of 15 presented a report submitting the proceedings of its several meetings, and also correspondence referring to the work of the local committee in New Orleans and to the employment of a general agent in that city to guarantee against the improper use of excursion tickets. The Committee says:

"The last meeting, held at Louisville, Jan. 7, was of the nature of conference with all lines in interest, with a view to obtaining restoration and adherence to rates and regulations, as adopted by your Committee.

"The correspondence resultant therefrom, which is quite voluminous, is indicative of general conservative sentiment, but it is to be regretted that the persistent refusal of certain prominent and influential lines to adopt or respect the instructions suggested by your committee has rendered them practically a dead letter throughout an extended territory, whereby irreparable injury has been inflicted upon the revenues of lines most directly interested in delivering business in New Orleans. From other territory, the rules, restrictions and rates suggested by your committee and affirmed by your honorable body have been well maintained and with most satisfactory results."

The report was accepted and the committee continued until the close of the Exposition.

A committee was appointed for the purpose of expressing the sense of the Association as to the merits of the Exposition.

The General Committee presented the following report, which was unanimously adopted:

"Your Committee recommends that the same rates and conditions be granted to the Knight Templar Triennial Conclave, to be held at St. Louis in 1886, as were made for similar meetings in Baltimore and San Francisco.

"Your Committee respectfully reports that the application of the Traders & Travelers' Union for special rates to members of that Association, be not complied with, as any concessions to an organized body of that order would create a precedent whereby a similar request from any Union that might hereafter be formed would of necessity have to be granted. That any concession made to them could not be withheld consistently from the general public, and the tendency would be to demoralize rates that now produce only fair revenue for the service performed."

After a recess had been taken a number of applications for

special rates were referred to the district association. At the request of the New England Association it was resolved that lines represented in this Association refuse to accept for passage tickets issued by the St. Lawrence Steamboat Co., or the Thousand Islands & Montreal Steamboat Co., until arrangements have been made for the settlement of traffic balances and the proper conduct of future business.

The committee appointed to express the sense of the Association in regard to the Exposition presented the following report, which was unanimously adopted and a copy ordered to be furnished to the authorities of the Exposition for transmission to the public:

"The undersigned Committee appointed by the National Association of General Passenger & Ticket Agents, meeting here-to-day, hereby report:

"That upon examination and personal judgment, they feel justified in endorsing to the public at large the World's Exposition at New Orleans, as being fully organized, and presenting such manifold attractions as will justify all reasonable expectations."

"It is further observed by the Committee, that the accommodations afforded in the city of New Orleans, as well as the very low rates of transportation offered by all railway lines, seem to be adequate to all existing requirements."

The following resolution was adopted, after remarks had been made on the question by several members:

"Resolved, That a Committee of five be appointed to report at this meeting or at a future meeting, and that it be instructed to take such action as may be necessary to perfect arrangements and regulations, which will restrict the carriage of extra hazardous or extraordinarily valuable property as baggage."

The chair appointed as such committee, Messrs. Wilson, Atmore, A. V. H. Carpenter, Stevenson and Thrall.

Resolutions in relation to the death of Mr. F. B. Mills, late General Passenger Agent of the Burlington, Cedar Rapids & Northern, were presented and adopted.

The Secretary stated that bound copies of the proceedings of the Association from 1855 to 1878 could be obtained from Mr. Samuel Powell, in Chicago, at \$1 per copy.

The election of officers being next in order, the following were unanimously chosen: President, C. A. Taylor; Vice-President, John N. Abbott; Secretary, A. J. Smith.

The Chair announced the following names for the standing committees: Executive committee; M. Slaughter, of Richmond; T. P. Barry of Cincinnati; F. E. Boothby of Portland; T. W. Pierce, Jr., of Houston. General Committee: A. D. Smith, of Pittsburgh; P. Lowell, of Chicago; W. F. White, of Topeka; H. Monett, of New York; A. C. Kendall, of Boston.

No objections being offered, the appointments were confirmed.

After adopting the usual resolutions of thanks the Association adjourned.

#### Master Car-Builders' Association Circular.

The following circular of inquiry has been issued to members of the Association:

##### AUTOMATIC FREIGHT CAR BRAKES.

The Committee appointed to report on Automatic Freight Car Brakes at the annual convention to be held in June, 1885, request the members of the Association to send them the names, with a brief description, of any automatic freight car brakes adopted by the management of their lines, or, if not yet adopted, that may have been successfully experimented with.

Drawings are not asked for, as the Committee hope to visit and see in actual operation any brakes that members may specially commend. A prompt reply therefore is particularly requested.

GODFREY W. RHODES,  
GEORGE HACKNEY,  
B. WELCH,  
Committee.

Replies to this circular should be addressed to Godfrey W. Rhodes, Chairman of Committee, Superintendent of Motive Power, Chicago, Burlington & Quincy Railroad, Aurora, Ill.

#### Annual Meeting of the New England Railroad Club.

The annual meeting of this Club was held on the evening of March 25, at its rooms in the Boston & Albany station in Boston. There was a very large attendance, and the President, Mr. F. D. Adams, occupied the chair.

The Secretary and Treasurer, Mr. John M. Ford, presented his report, giving a history of the Club, which was first organized March 21, 1883, with 21 members. It has now 113, and the average attendance at meetings during the past year has been 77. The Club is financially in a good condition. The receipts for last year amounted to \$503; the expenses were \$256, leaving \$246 in the treasury. Mr. Ford, in his report, referred at considerable length to the future of the Club, concluding as follows:

"The problems which lay awaiting at your hands for solution are the difficult and trying questions of how to reduce mechanical construction to a science, under vary conditions, which will give the maximum safety at the minimum cost, and to demonstrate the facts to the comprehension of all, without resort to the necessity of harmonizing opinions which are of individual growth."

"A knowledge of facts is as necessary to true success as the iron rails are to the locomotive. It is not an opinion when I say that the metal of which boilers are made should be strong and homogeneous; it is a fact that necessity calls for this; testing the qualities of the metals proves the economy or expense of each. If I have any one thought to urge above another, it is that each member during the coming year contribute some one fact to the science of railroad economy. The interest, value and strength of the club are in its power, through its members, to determine facts in relation to materials and things needed for the most economic operations of railroads."

"I cannot refrain, at this time, from expressing a firm, unshaken conviction that a uniform automatic coupler, as well as uniformity of parts liable to breakage for the freight cars of the country, is an accomplishment of profound importance, valuable as an economic feature of railroad construction, and worthy the further consideration of this club. A man is needed who has moral power to unite and weld into a single purpose the railroad mechanics of the country for the achievement of this object. Such a one, strengthened by the harmonious action of a club like this, would receive an impulse to action which would, without question, result in success."

"Abundant opportunities for usefulness are before the club; and may it in the future, as in the past, live in harmony, prosperity, tranquillity and peace, is the desire of your retiring secretary."

The committee to nominate officers for the ensuing year stated that Mr. Adams had declined re-election as President, and presented the following names. The gentlemen thus nominated were unanimously elected, as follows:

President, J. W. Marden; Vice-President, J. N. Lauder; Secretary and Treasurer, J. M. Ford; Executive Committee, J. W. Marden, J. N. Lauder, F. D. Adams, Orlando Stewart, D. C. Richardson, John Kent, C. J. Post, F. C. Moseley, G. H. Billings; Finance Committee, Samuel D. Nye, F. M.

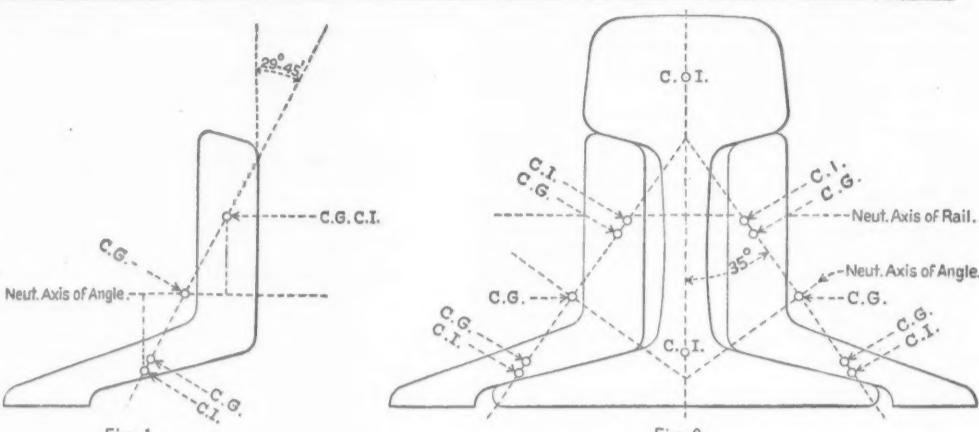


Fig. 1.

Fig. 2.



Fig. 3.

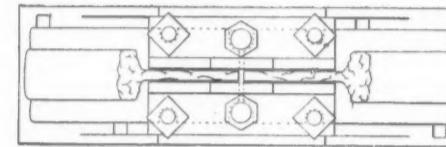


Fig. 4.

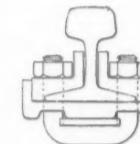


Fig. 5.

Curtis, Osgood Bradley, T. W. Getman, Henry L. Leach, F. S. Sherburne, George Buntin, G. W. Peck.

A vote of thanks was passed to the retiring President and other officers. A committee was appointed to make arrangements for the transportation of members to the annual convention of the Master Car-Builders' Association at Fortress Monroe, in June. There was an informal discussion as to the best route to be taken, and the Secretary was instructed to send circulars to all the members inquiring their wishes and intentions.

#### Why Do Rail-Joints Break?

An interesting and careful paper on this subject, containing some new data of value, was recently read before the Engineers' Society of Western Pennsylvania, by M. J. Becker, Chief Engineer of the Pittsburgh, Cincinnati & St. Louis Railway. Mr. Becker wisely confines his attention chiefly to one form of joint, the standard of the Pennsylvania Railroad 69 lbs. rail, ties being 22½ in. centre to centre. The mathe-

affords the means of determining what proportion of the load is borne by the rails and by the splice-bars respectively.

By computation on this basis, the maximum fibre-strains are found to be:

In the angle-bar ..... 8,190 lbs.  
" " rail ..... 6,724 "

Which are within limits usually called safe, even after adding 50 per cent. for impact strains.

Similar computation of strains in the middle of the rail gives maximum fibre-strains of only 4,575 lbs., regarding the rail as a continuous beam.

Computations also show that, to afford equal strength, joint ties should be spaced only 8.84 in. apart in the clear, if intermediate ties are spaced 14½ in. apart. This corresponds exactly with the experiments made by Baron von Weber, in which he measured by registering scales, placed under the rails, the different deflections caused by passing loads upon rails between joint ties and between intermediate ties, and established the general rule, that with ordinary angle-bar splices, joint ties should be placed six-tenths the distance of intermediate ties. (*Engineering*, Vol. X., page 294.)

Without assuming that the computations are absolutely correct, they are considered to indicate the relative weakness of the joint; and their essential correctness, as well as the too great negligence on this subject, is still more emphatically proven by a fact mentioned by Mr. Becker, that he has found 1,130 broken angle-bars in a single division of six miles of track, or 27 per cent. of all that were in it; a fact which is justly characterized as "startling," and which we may reasonably hope is quite exceptional.

All of these bars are reported to have torn apart on the top edge, in the middle of the joint, between the two bolt-holes (substantially as shown in the engraving of broken angle-bars published in the *Railroad Gazette* of March 6, 1885), the fracture extending from the outer edge downwards in lengths varying from ¼ in. to the total width of the vertical leg of the angle-bar, but in not a single case did the fracture extend into the bottom flange or horizontal leg of the angle-bar (a fact which does not correspond with Mr. Low's observations, just referred to), and the rupture was in every case a clean tear, evidently caused by extension of the upper fibres of the top flange.

Mr. Becker continues, "You will see, therefore, that these fixtures do not break according to the rules of the books. They defy your statical moment and sneer at your modulus of resistance. They break most numerously when entirely new, just after being laid, notwithstanding the most perfect support and most careful adjustment. They break everywhere, although they do it most persistently on gravel ballast, but in the absence of any ballast they break as well; indeed, they seem to have a preference for the smooth and perfectly flat floors of iron bridges and viaducts."

"It is undoubtedly true that a large share of the destruction of joints is due to the defective metal in the bars. I never had any analysis made of the material, and I cannot definitely say to what extent furnace cinder preponderates in the composition. Some iron manufacturers (present company, of course, excepted) do sell some very inferior metal to railroad companies occasionally, just for the purpose of showing how easy it is for them to deceive the young graduate part of the profession at the expense of the railroad company while serving with the title of inspector at a rolling mill."

"These failures, however, did not occur with the new standard angle-bars of enlarged section at the top, \* \* \* and it is proper to state that thus far no failures have been reported of the new bars, of which a small number have been recently laid."

"The original advocates of the so-called suspended rail-joint never anticipated such results, nor did its opponents ever point them out. The effect is due to causes not looked for by either side. What, then, is causing the mischief and what is the remedy?"

Mr. Becker's explanation is that the comparative weakness of the joint causes greater vertical motion in the joint ties and consequent excessive deterioration of the ballast, produc-

matical theory of strength is entered into very fully, but we can give only a brief summary of results:

With driving-wheel of a fast passenger engine with its load of 20,000 lbs. per wheel resting on the tip of the rail (projecting 7½ in. beyond the edge of the tie) we have:

Moment of bending force, 145,000 in.-lbs.; maximum fibre-strain on extreme fibres, 18,300 lbs.; ultimate strength (assuming 45,000 max. fibre-strain), 49,175 lbs.; deflection due to actual load, 0.0054 in.

With load precisely over the joint so as to rest half on each rail, the resulting fibre-strain and deflection is half the above.

It is then pointed out that, owing to the less symmetrical form of the angle-bar, the ordinary formulae for bending strength cannot be applied to it as they could if it were an approximately symmetrical body, relatively to the load, and the complications are made as follows:

(1) The neutral axis, fig. 1, was determined by balancing a template; (2) the moment of inertia, and from it (3) the radius of gyration, was then calculated in the usual way. To locate the centres of inertia, (4) the centres of gravity, C. G., fig. 1, were computed and a line drawn through them, and (5) the centres of inertia were taken on this line at a perpendicular distance from the neutral axis equal to the radius of gyration.

It was then assumed that the force acting upon each bar will be the component of the vertical load in the direction of the inclined line of resistance, and the resistance of the bar will be represented, not by its moment of inertia about a horizontal axis, but by its moment about an axis at right angles to the inclined line through the centre of gravity of the section, fig. 2.

Then we have for the angle-bar:

Section, square inches ..... 2.671  
For an allowable fibre-strain of 25,000 lbs., calculated

transverse strength of two bars only ..... 17,300 lbs.

Centre deflection from that load ..... 0.0074 in.

If of steel these bars will carry ..... 28,850 lbs.

With a centre deflection of ..... 0.007 in.

For ascertaining the united strength of the two we have as above:

Transverse strength ..... 2.671  
Fibre strain ..... 0.0054 in.

Projecting rail end ..... 49,175 lbs. 18,300 lbs. 0.0054 in.

Angle-bar ..... 17,300 " 25,200 " 0.0074 "

## THE RAILROAD GAZETTE.

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ing the state of things outlined in fig. 3, when, if either of the ties is lower than the other (ordinarily each may be in succession), there is plainly a tendency to rupture the bars precisely where and as they do rupture.

Another theory which has been advanced, that there is a kind of upward wave motion at the head of the train which concentrates itself at the joint and so produces a strong rupturing tendency at the joint, Mr. Becker considers a much less probable cause. There is, however, no reason why the two causes may not co-operate with each other.

In further evidence of the great comparative weakness of the joint and of the correctness of the computations given, Mr. Becker submits the following table of tests of various forms of angle and fish-plates:

Table of Tests of the Strength of Joints and Rails.

| No. | Description joints (all 24 in. long.) | Weight.  |
|-----|---------------------------------------|----------|
| 1.  | Pa. R. R. Std 2 str't bars.....       | 18 lbs.  |
| 2.  | " " 1 " and 1 angle.                  | 27 "     |
| 3.  | " " 2 angles.....                     | 35 "     |
| 4.  | Penna. Co " 2 ".....                  | 29 1/4 " |
| 5.  | Samson joint 2 str't bars.....        | 20 "     |
| 6.  | " " 1 " and 1 angle..                 | 23 1/2 " |
| 7.  | " " 2 angles.....                     | 26 1/2 " |
| 8.  | Steel rail 60 lbs. per yard.....      |          |

Deflections under successive loads.

| No. | 10,000  | 15,000     | 20,000     | 25,000     | 30,000     |
|-----|---|------------|------------|------------|------------|
|     | Defl.   | Defl.      | Defl.      | Defl.      | Defl.      |
|     | Perm. set.                                    | Perm. set. | Perm. set. | Perm. set. | Perm. set. |
| 1.  | 1/16  | 1/16       | 1/16       | 1/16       | 1/16       |
| 2.  | 1/16  | 1/16       | 1/16       | 1/16       | 1/16       |
| 3.  | 1/16  | 1/16       | 1/16       | 1/16       | 1/16       |
| 4.  | 1/16  | 1/16       | 1/16       | 1/16       | 1/16       |
| 5.  | 1/16  | 1/16       | 1/16       | 1/16       | 1/16       |
| 6.  | 1/16  | 1/16       | 1/16       | 1/16       | 1/16       |
| 7.  | 1/16  | 1/16       | 1/16       | 1/16       | 1/16       |
| 8.  | 1/16  | 1/16       | 1/16       | 1/16       | 1/16       |
|     | First permanent set (1/16 in.) at 97,500 lbs. |            |            |            |            |

| No.    | Ultimate |         | REMARKS.                                  |
|--------|----------|---------|---|
|        | Load.    | Defl.   |   |
| 1..... | 50,960   | 3"      | Broke 1 bar.                              |
| 2..... | 60,060   | 2 1/16" | " 2 bolts.                                |
| 3..... | 79,300   | "       | " 2 "                                     |
| 4..... | 83,720   | 3"      | " 2 "                                     |
| 5..... | 76,700   | 3 1/2"  | " 2 "                                     |
| 6..... | 74,700   | 3 1/2"  | " 2 " 2 1/2" lat. defl. of angle.         |
| 7..... | 78,000   | 2 1/4"  | " 1 angle some lat. defl. of sound angle. |
| 8..... | 182,000  | ....    | Splitting under head.                     |

Tests made by Mr. T. Rodd, under the supervision of Mr. Ward Bates, at the Keystone Bridge Works. Steel rail-ends each 12 in. long, of 600 lbs. weight per yard and of the standard section used by the Pennsylvania Co. at that time, were spliced and bolted together in the usual manner, with the various splices tested, and tested on bearings 20 in. apart. The piston pressure was applied in the middle of the lengths of the spaces of the rail section.

The Samson bar is a modification of the fish-bar and angle-bar, consisting in a reduction of the sectional area near the ends of the bars to save metal, and a very slight increase over the sectional areas of the fish and angle-bars in the middle.

These tests show, that while the straight Samson bar is somewhat stronger than the straight fish-bar, the Samson angle-bar presents no advantages over the regular standard angle-bars. The tests of the joints composed of one straight bar and one angle-bar, give, as may be expected, rather unsatisfactory results. The strength of the solid rail, as developed by the test, is more than double the strength of the angle-bar joint.

"Supported" joints (those having a tie directly under them) Mr. Becker considers exposed to two dangers: In case the first tie from the joint is low, there will be the same tendency to rupture as in fig. 3, acting with twice as great a leverage, and in case the joint tie itself is low, there will be a strong tendency to compress the top edge of the angle-bar. As, however, the natural tendency is that the joint tie should be low instead of high, and as compression in the top edge of the bar and tension in the lower does not appear to cause much, if any trouble, we have here, perhaps, an explanation of the fact, if it be a fact, that supported joints break less frequently than suspended.

Long angle-bars, 36 to 44 in., extending over three ties, Mr. Becker considers of questionable advantage on account of their cost, since they will not overcome the two evils last mentioned, although they undoubtedly stiffen the joint.

Another of the new forms of angle-plates, fig. 4, Mr. Becker considers a move in the right direction, unless the sharp angles injuriously affect rolling. The new Pennsylvania splice-bar is a less pronounced type of this class.

Finally, of the Fisher joint, fig. 5, Mr. Becker says:

"The so-called 'Fisher joint' is recommended and endorsed by engineers who have tried it in the track; it consists of a U-shaped trough, of a width to fit the base of the rail, and of a length of about 21 in., the ends resting upon two joint ties, the rail being secured by U-shaped bolts, passing under the splice and fastened by nuts to the rail base, which is checked or slotted for that purpose; the device is shown on fig. 5. The trough certainly prevents deflection of the rail ends, and its sides confine the rails against lateral displacement, but its introduction meets with opposition on account of the radical changes it involves, embracing not only the slotting and punching of the rails, but the necessary checking down of the joint ties to receive the plates."

The best part of the paper, in one sense at least, is the ending. After apologizing for presenting a subject "of so little general interest," Mr. Becker concludes:

"The consideration of it, should it receive any at all, must be confined to the few unfortunates who share my own untenable lot. The profession is gradually disintegrating into specialties, and the pursuit of one branch of knowledge is becoming enough for one man; indeed, I have found it sometimes to be too much. Perhaps, after all, some of you never knew that splice-bars would break, and you might have been killed on

a railroad from the effects of a broken joint and never known the cause. Of course, to a dead man, this would not be a matter of much consequence, but the knowledge that your untimely end was due to the distortion of the radius of gyration in a rail section, or to the buckled-up moment of inertia in a splice-bar, might, perhaps, be a source of consolation to your grief-stricken widow."

## Engineers' Club of St. Louis.

The Club met in St. Louis, March 18, President Moore in the chair; 25 members and 3 visitors present.

On motion of Mr. J. B. Johnson, the Club unanimously adopted the following:

"Resolved, That a committee be appointed to consider and report upon the best means of improving the status of civil engineers in the service of the general government."

Mr. J. B. Johnson read a paper on the Theory of Car Starters, which was discussed by the Club.

The President read a paper by Mr. Howard Constable on the Proposed Water-Pipe Line in the Soudan.

Col. S. H. Lockett, who was one of the American officers in the service of the Khedive in 1875-77, as Chief Topographical Engineer, being present, spoke at some length as to the proposed pipe line and railroad. He was familiar with the country through which the pipe line is projected and did not doubt its successful construction was assured. He thought the railroad projected would be built. The pipe line would aid such construction and be absolutely necessary to its maintenance. The climate was no bar to its settlement, for not considering the lack of water, there were no features of the climate against which objection could be brought. To obviate the lack of water, the expedition with which he was connected made drive wells from which good, constant supplies of water were obtained.

Prof. Johnson exhibited a French calculating machine, which excited considerable discussion. The Club then adjourned.

## ANNUAL REPORTS.

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## Cleveland, Columbus, Cincinnati &amp; Indianapolis.

This company owns lines from Cleveland O., to Columbus, 138 miles; Delaware, O., to Springfield, 50 miles, and Gallion, O., to Indianapolis, 203 miles; a total of 391 miles. The report is for the year ending Dec. 31.

The company also leases the Mt. Gilead Short Line, from Levering, O., to Mt. Gilead, 2 miles. It leases and practically owns the Cincinnati & Springfield, from Springfield to Cincinnati, 80 1/2 miles. It owns the Indianapolis & St. Louis, from Indianapolis to Terre Haute, 72 miles, and, through that organization, leases the St. Louis, Alton & Terre Haute, from Terre Haute to East St. Louis, 189 miles, with a branch to Alton, 4 miles. This makes 347 1/2 miles leased and controlled, but the earnings and operations of these lines are not given in the report.

The equipment consists of 166 locomotives; 87 passenger, 6 sleeping and 24 baggage and mail cars; 2,649 box, 570 stock, 580 flat, 1,340 coal and 63 caboose cars; 1 directors' car, 1 pay car and 19 road and service cars.

The general balance sheet, condensed, is as follows:

|  |              |
|--|--------------|
| Stock (\$15,000,000, less \$8,400 owned by Co.)..... | \$14,991,600 |
| Funded debt.....                                     | 8,816,000    |
| Bills, accounts and balances.....                    | 1,357,409    |
| Income account, balance.....                         | 3,626,682    |
| Total.....   | \$28,791,601 |
| Road and equipment.....                              | \$18,450,392 |
| Materials.....                                       | 182,421      |
| Cin. & Springfield.....                              | 3,111,340    |
| Indianapolis & St. Louis.....                        | 4,895,767    |
| Other investments, stocks, etc.....                  | 216,201      |
| Accounts and balances.....                           | 698,370      |
| Cash.....  | 237,200      |
|  | \$28,791,601 |

The funded debt was increased \$1,521,100. It includes \$319,000 Bellefontaine & Indiana firsts; \$3,997,000 first consols and \$1,500,000 general consols. The general consols and \$785,000 first consols were sold last year and \$53,000 old divisional bonds and \$4,000 consols redeemed.

The traffic for the year was:

| Train miles:                 | 1884.       | 1883.       | Inc. or Dec. | P. c.      |
|------------------------------|-------------|-------------|--------------|------------|
| Passenger.....               | 1,188,323   | 1,106,726   | I.           | 81,597     |
| Freight.....                 | 1,943,236   | 1,873,212   | I.           | 70,014     |
| Serv'e and switch            | 1,436,401   | 1,422,864   | I.           | 13,537     |
| Total.....                   | 4,507,950   | 4,402,802   | I.           | 165,148    |
| Pass. carried.....           | 938,647     | 976,468     | D.           | 37,821     |
| Passenger-miles.....         | 42,170,610  | 43,548,617  | D.           | 1,372,607  |
| Tons freight-carried.....    | 2,347,792   | 2,527,993   | D.           | 180,201    |
| Ton-miles.....               | 397,678,278 | 408,436,350 | D.           | 10,758,072 |
| Av. train load:              |             |             |              |            |
| Passengers, No. ....         | 36          | 39          | D.           | 3          |
| Freight, tons ...            | 205         | 218         | D.           | 6.0        |
| Average rate:                |             |             |              |            |
| Per pass.-mile... 2,133 cts. | 2,217 cts.  | D.          | 0.084 cts.   | 3.8        |
| " net 0.464 "                | 0.398 "     | L.          | 0.066 "      | 16.5       |
| Per ton-mile.... 0.633 "     | 0.751 "     | D.          | 0.118 "      | 15.7       |
| " net 0.117 "                | 0.206 "     | D.          | 0.060 "      | 43.2       |

Locomotive service cost 16.23 cents per mile run. The average rate on through freight was 0.525 cent.; on local, 1.018 cents per ton-mile. Of the total tonnage last year 84.9 per cent. was through and 35.1 local; 62.6 per cent. east and 37.4 west-bound.

The average receipts and cost per ton-mile, in cents, have been as follows for 10 years past:

| Receipt.  | Cost. | Net.  | Receipt. | Cost.     | Net.  |       |       |
|-----------|-------|-------|----------|-----------|-------|-------|-------|
| 1884..... | 0.633 | 0.516 | 0.117    | 1879..... | 0.697 | 0.575 | 0.122 |
| 1883..... | 0.751 | 0.545 | 0.206    | 1878..... | 0.752 | 0.655 | 0.097 |
| 1882..... | 0.706 | 0.513 | 0.193    | 1877..... | 0.890 | 0.849 | 0.041 |
| 1881..... | 0.671 | 0.511 | 0.160    | 1876..... | 0.814 | 0.756 | 0.058 |
| 1880..... | 0.792 | 0.590 | 0.202    | 1875..... | 1.005 | 0.887 | 0.118 |

This includes all freight, through and local, in both directions.

The earnings for the year were:

\$204,100 (\$9,278 per mile), a decrease of \$53,001 (20.6 per cent.) from 1883. There were 53,797 passengers carried, a decrease of 9,967 (15.6 per cent.) and 1,122,596 tons of freight, a decrease of 156,901 tons (12.3 per cent.), chiefly in coke, iron ore, stone, lime and iron. The lessee's net gain on the road in 1884 was \$6,801.

The income account for the year was:

|   |          |
|---|----------|
| Rental (40 per cent. of earnings).....  | \$81,644 |
| Interest received.....                  | 1,533    |
| Total.....                              | \$83,177 |
| Interest and sinking fund on bonds..... | \$26,625 |

|                                 |        |
|---------------------------------|--------|
| Taxes and general expenses..... | 5,115  |
| Dividends, 10 per cent.....     | 48,711 |

|                           |         |
|---------------------------|---------|
| Surplus for the year..... | \$2,726 |
|---------------------------|---------|

There has been paid to the lessee \$9,000 for additional sidings laid in 1883. A further requisition for \$8,800 for new sidings laid last year has been approved by the board as necessary.

In accordance with the action of the stockholders at the last annual meeting, the board has increased the capital stock from \$450,000 to \$500,000, the additional stock being taken by the stockholders ratable at par. Two extra dividends, amounting to \$95,000, were declared and paid to the stockholders from surplus earnings.

#### Peoria, Decatur & Evansville.

This company operates a line from Peoria, Ill., to Evansville, Ind., 248 miles, with a branch to New Harmony, Ind., 6 miles, making 254 miles in all. Of this line 242 miles are owned, 10 miles, from Peoria to Pekin, being leased from the Peoria & Pekin Union Co., and 2 miles, through Decatur, from the Illinois Central. There are 40 miles of sidings owned by the company. The report is for the year ending Dec. 31.

The equipment consists of 30 locomotives; 12 passenger, 3 combination and 3 mail and baggage cars; 1,040 box, 200 line box, 100 stock, 176 coal, 128 flat and 16 caboose cars; 1 officers' car, 1 derrick and 1 pile-driver car.

The general balance sheet, condensed, is as follows:

|                                      |              |
|--------------------------------------|--------------|
| Stock.....                           | \$8,400,000  |
| Funded debt.....                     | 4,845,000    |
| Accrued interest, accounts, etc..... | 147,211      |
| Profit and loss, balance.....        | 62,335       |
| Total.....                           | \$13,454,546 |
| Road and equipment.....              | \$13,245,000 |
| Sundry securities.....               | 18,300       |
| For purchase of equipment.....       | 41,508       |
| Material on hand.....                | 20,859       |
| Accounts receivable.....             | 67,625       |
| Cash.....                            | 61,262       |

The funded debt consists of \$2,757,000, first mortgage 6s and \$2,088,000 income bonds. There was no change during the year.

The traffic for the year was:

| Train Miles:              | 1884.       | 1883.       | Inc. or Dec. | P. c.           |
|---------------------------|-------------|-------------|--------------|-----------------|
| Passenger.....            | 175,781     | 172,992     | L            | 2,786           |
| Freight.....              | 331,806     | 300,113     | L            | 31,683          |
| Service.....              | 18,596      | 15,414      | L            | 3,182           |
| Total.....                | 526,183     | 488,519     | L            | 37,664          |
| Pass. car miles.....      | 759,651     | 744,989     | L            | 14,662          |
| Freight car miles.....    | 5,115,867   | 4,289,050   | L            | 826,808         |
| Passengers carried.....   | 275,533     | 264,304     | L            | 11,169          |
| Passenger-miles.....      | 6,171,500   | 5,919,381   | L            | 252,119         |
| Tons freight carried..... | 427,515     | 357,399     | L            | 70,125          |
| Ton-miles.....            | 42,430,268  | 34,105,656  | L            | 8,324,612       |
| Average Train Load:       |             |             |              |                 |
| Passengers, No. ....      | 35          | 34          | L            | 1 3.0           |
| Freight, tons.....        | 125         | 117         | D            | 8 6.8           |
| Average Rate:             |             |             |              |                 |
| Per passenger-mile.....   | 2.63 cts.   | 2.66 cts.   | D            | 0.03 cts. 1.1   |
| Per ton-mile.....         | 1.13 cents. | 1.33 cents. | D            | 0.20 cents. 1.5 |

The freight car mileage 75.7 per cent. last year was of loaded cars. Locomotive service cost 12.11 cents per mile. Of the tons carried 36.7 per cent. were through freight.

The earnings for the year were:

| 1884.                     | 1883.     | Inc. or Dec. | P. c. |
|---------------------------|-----------|--------------|-------|
| Freight.....              | \$478,213 | \$455,093    | I     |
| Passengers.....           | 163,612   | 157,515      | L     |
| Mail and express.....     | 26,241    | 24,476       | L     |
| Miscellaneous.....        | 92,702    | 84,171       | L     |
| Total.....                | \$750,768 | \$721,255    | L     |
| Expenses.....             | 440,196   | 424,080      | L     |
| Net earnings.....         | \$319,572 | \$297,175    | L     |
| Gross earn. per mile..... | 2.991     | 2.839        | L     |
| Net " "                   | 1.258     | 1.170        | L     |
| Per cent. of exps.....    | 57.9      | 58.8         | D     |
| 0.9                       | 0.9       |              |       |

Taxes are not included in expenses. Receipts from car mileage are included in miscellaneous, and charges to the same account in expenses.

The result of the year was as follows:

|                                     |           |
|-------------------------------------|-----------|
| Net earnings, as above.....         | \$319,572 |
| Interest, first-mortgage bonds..... | \$165,420 |
| " equipment certificates.....       | 22,692    |
| Rentals and taxes.....              | 64,950    |
| Equipment certificates paid.....    | 47,333    |
| New construction.....               | 15,517    |
| Balance.....                        | \$5,651   |

Expenditures for new construction and improvement were \$101,618, of which the sum of \$13,517 was charged to income, the remaining \$88,101 being the balance of the special improvement fund left over from 1883.

Renewals and improvements included 36 miles of steel rails, 65,662 new ties, the rebuilding of 12 pile bridges and 6,314 ft. new sidings. Of the main tracks 176 miles are laid with steel, leaving 78 miles of main track and 40 miles of sidings laid with iron.

The corn crop on the line was below a fair average; the wheat crop was near an average in Indiana, but below it in Illinois, and much of it still remains unshipped, on account of low prices. Much of the increase in freight tonnage was in coal, which was hauled only short distances and at a low rate. The rates on through traffic were extremely low throughout the year.

#### Kentucky Central.

This company makes the following brief statement for the year ending Dec. 31, in advance of the publication of the annual report.

The earnings for the year were:

| 1884.                     | 1883.     | Inc. or Dec. | P. c. |
|---------------------------|-----------|--------------|-------|
| Earnings.....             | \$922,108 | \$842,052    | I     |
| Expenses.....             | 603,721   | 485,233      | L     |
| Net earnings.....         | \$318,487 | \$356,810    | D     |
| Gross earn. per mile..... | 3.958     | 4.169        | D     |
| Net " "                   | 1.367     | 1.766        | D     |
| Per cent. of exps.....    | 65.5      | 57.6         | L     |
| 7.9                       | 7.9       |              |       |

At the close of the year the company owned 216 and leased

| RAILROAD EARNINGS IN FEBRUARY. |          |       |       |       |       |           |           |       |         |                    |       |       |       |      |       |
|--------------------------------|----------|-------|-------|-------|-------|-----------|-----------|-------|---------|--------------------|-------|-------|-------|------|-------|
| NAME OF ROAD.                  | MILEAGE. |       |       |       |       | EARNINGS. |           |       |         | EARNINGS PER MILE. |       |       |       |      |       |
|                                | 1885.    | 1884. | Inc.  | Dec.  | P. c. | 1885.     | 1884.     | Inc.  | Dec.    | P. c.              | 1885. | 1884. | Inc.  | Dec. | P. c. |
| EASTERN ROADS.                 |          |       |       |       |       |           |           |       |         |                    |       |       |       |      |       |
| Boston, Hoosac Tun. & West.    | 87       | 87    | ..... | ..... | ..... | \$22,843  | \$29,960  | \$    | 7,117   | 23.7               | \$263 | \$444 | \$    | 81   | 23.7  |
| Grand Trunk.....               | 2,918    | 2,918 | ..... | ..... | ..... | 909,348   | 1,297,147 | ..... | 297,799 | 21.4               | 342   | 445   | ..... | 103  | 21.4  |
| Long Island.....               | 354      | 354   | ..... | ..... | ..... | 137,534   | 138,081   | ..... | 547     | 0.4                | 388   | 390   | ..... | 2    | 0.4   |
| N. Y. & New England.....       | 400      | 400   | ..... | ..... | ..... | 226,097   | 252,603   | ..... | 26,506  | 10.5               | 565   | 632   | ..... | 67   | 10.5  |
| N. Y., Sus. & Western.....     | 147      | 147   | ..... | ..... | ..... | 68,505    | 64,140    | 4,335 | .....   | 6.8                | 406   | 436   | ..... | 30   | 6.8   |
| Northern Central.....          | 322      | 322   | ..... | ..... | ..... | 389,048   | 398,612   | ..... | 9,564   | 2.4                | 1,268 | 1,238 | ..... | 30   | 2.4   |
| Pennsylvania*.....             | 2,268    | 2,103 | 165   | ..... | 7.9   | 3,077,680 | 3,428,713 | ..... | 351,033 | 10.2               | 1,357 | 1,630 | ..... | 273  | 16.8  |
| Philadelphia & Reading*.....   | 1,560    | 1,560 | ..... | ..... | ..... | 1,794,645 | 2,002,342 | ..... | 267,697 | 10.4               | 1,150 | 1,284 | ..... | 134  | 10.4  |
| Rochester & Pittsburgh.....    | 294      | 294   | ..... | ..... | ..... | 67,383    | 72,487    | ..... | 5,104   | 7.1                | 229   | 247   | ..... | 18   | 7.1   |
| West Jersey.....               | 201      | 188   | 13    | ..... | 6.9   | 56,944    | 67,186    | ..... | 10,242  | 16.2               | 283   | 357   | ..... | 74   | 20.7  |
| Total, 10 roads.....           | 8,551    | 8,373 | 178   | ..... | 2.1   | 6,840,027 | 7,751,271 | 4,365 | 915,609 | .....              | 800   | 926   | ..... | 126  | ...   |
| Total inc. or dec.....         |          |       |       | ..... |       |           |           |       | 911,244 | 11.8               |       |       | ..... | 126  | 13.5  |

| SOUTHERN ROADS. |  |  |  |  |  |  |  |  |  |  |  |
|-----------------|--|--|--|--|--|--|--|--|--|--|--|
|-----------------|--|--|--|--|--|--|--|--|--|--|--|

|                                 |     |     |       |           |       |         |         |       |        |      |     |     |       |      |      |
|---------------------------------|-----|-----|-------|-----------|-------|---------|---------|-------|--------|------|-----|-----|-------|------|------|
| Alabama Great Southern.....     | 290 | 290 | ..... | .....     | ..... | 98,450  | 89,276  | 9,174 | .....  | 10.3 | 340 | 308 | 32    | 10.3 |      |
| Chesapeake & Ohio.....          | 517 | 517 | ..... | .....     | ..... | 232,031 | 266,071 | ..... | 34,040 | 12.8 | 449 | 515 | ..... | 66   | 12.8 |
| Eliz., Lex. & Big Sandy.....    | 130 | 130 | ..... | .....     | ..... | 46,999  | 45,948  | 1,051 | .....  | 2.3  | 362 | 353 | 0     | 2.3  |      |
| Ches., Ohio & Southwestern..... | 399 | 399 | ..... | .....</td |       |         |         |       |        |      |     |     |       |      |      |

## RAILROAD EARNINGS, TWO MONTHS ENDING FEBRUARY 28.

| NAME OF ROAD.             | MILEAGE. |        |      |      |       | EARNINGS.  |            |           |           |       | EARNINGS PER MILE. |        |       |       |       |
|---------------------------|----------|--------|------|------|-------|------------|------------|-----------|-----------|-------|--------------------|--------|-------|-------|-------|
|                           | 1885.    | 1884.  | Inc. | Dec. | P. c. | 1885.      | 1884.      | Inc.      | Dec.      | P. c. | 1885.              | 1884.  | Inc.  | Dec.  | P. c. |
| EASTERN ROADS.            |          |        |      |      |       |            |            |           |           |       |                    |        |       |       |       |
| Bos., Hoos. T. & W.       | 87       | 87     | .    | .    | .     | \$ 55,062  | \$ 55,830  | .         | \$ 768    | 1.4   | \$ 633             | \$ 642 | .     | 9     | 1.4   |
| Grand Trunk               | 2,918    | 2,918  | .    | .    | .     | 2,405,890  | 2,701,420  | .         | 295,530   | 10.9  | 824                | 926    | .     | 102   | 10.9  |
| Long Island               | 334      | 354    | .    | .    | .     | 287,969    | 273,693    | 14,276    | 5.2       | 813   | 773                | 40     | 5.2   | 5.2   |       |
| N. Y. & New Eng.          | 400      | 400    | .    | .    | .     | 456,517    | 405,649    | .         | 39,132    | 7.0   | 1,141              | 1,239  | .     | 98    | 7.9   |
| N. Y., Susq. & W.         | 147      | 147    | .    | .    | .     | 139,170    | 128,195    | 10,975    | 8.6       | 947   | 872                | 75     | 8.6   | 8.6   |       |
| Northern Central          | 322      | 322    | .    | .    | .     | 793,265    | 808,458    | .         | 15,193    | 1.9   | 2,464              | 2,511  | .     | 47    | 1.9   |
| Pennsylvania*             | 2,268    | 2,103  | 165  | .    | 7.9   | 6,352,202  | 7,000,046  | .         | 647,744   | 9.2   | 2,801              | 3,329  | .     | 528   | 15.9  |
| Phila. & Reading          | 1,560    | 1,560  | .    | .    | .     | 3,641,011  | 4,198,142  | .         | 557,131   | 13.3  | 2,334              | 2,641  | .     | 357   | 13.3  |
| Rochester & Pitts.        | 294      | 294    | .    | .    | .     | 152,014    | 140,687    | 11,347    | 8.0       | 517   | 479                | 38     | 8.0   | 8.0   |       |
| West Jersey               | 201      | 188    | 13   | .    | 6.8   | 127,064    | 136,486    | .         | 9,422     | 6.9   | 632                | 726    | .     | 94    | 13.0  |
| Total, 10 roads..         | 8,551    | 8,373  | 178  | .    | .     | 14,411,184 | 15,939,506 | 36,598    | 1,564,920 | .     | 1,685              | 1,904  | .     | 210   | 11.5  |
| Total inc. or dec.        | .....    | .....  | 178  | .    | 2.1   | .....      | .....      | 1,528,322 | 9.6       | ..... | .....              | 219    | 11.5  | ..... |       |
| SOUTHERN ROADS.           |          |        |      |      |       |            |            |           |           |       |                    |        |       |       |       |
| Ala. St. Southern         | 290      | 290    | .    | .    | .     | 203,241    | 177,589    | 25,632    | 14.3      | 701   | 612                | 89     | 14.3  | 14.3  |       |
| Ches. & Ohio              | 517      | 517    | .    | .    | .     | 524,941    | 516,692    | .         | 21,751    | 3.9   | 1,015              | 1,057  | .     | 42    | 3.9   |
| Eliz., Lex. & B. S.       | 130      | 130    | .    | .    | .     | 102,640    | 93,336     | 9,304     | 9.9       | 788   | 718                | 71     | 9.9   | 9.9   |       |
| Ches., O. & S. W.         | 399      | 399    | .    | .    | .     | 223,690    | 185,119    | 38,541    | 20.8      | 561   | 464                | 97     | 20.8  | 20.8  |       |
| Cin., N. O. & Tex. P.     | 333      | 336    | .    | .    | .     | 307,745    | 342,543    | 54,802    | 16.0      | 1,184 | 1,022              | 162    | 16.0  | 16.0  |       |
| East Tenn., Va. & Ga.     | 1,098    | 1,098  | .    | .    | .     | 509,220    | 638,380    | .         | 39,160    | 6.1   | 546                | 582    | .     | 36    | 6.1   |
| Fla. Ry. & Nav. Co.       | 528      | 477    | 51   | .    | 10.7  | 181,632    | 177,430    | 4,202     | 2.4       | 344   | 372                | .      | 28    | 7.6   |       |
| Ill. Cent. So. Div.       | 711      | 578    | 133  | .    | 23.0  | 785,441    | 710,186    | 75,255    | 10.6      | 1,105 | 1,229              | .      | 124   | 10.1  |       |
| Kentucky Central          | 254      | 270    | 34   | .    | 15.5  | 113,710    | 104,530    | 9,180     | 8.7       | 448   | 475                | .      | 27    | 5.7   |       |
| Louisville & Nash.        | 2,065    | 2,065  | .    | .    | .     | 2,253,454  | 2,054,748  | 198,706   | 9.7       | 1,091 | 995                | 96     | 9.7   | 9.7   |       |
| Mobile & Ohio             | 528      | 528    | .    | .    | .     | 305,455    | 340,511    | 24,944    | 7.3       | 692   | 645                | 47     | 7.3   | 7.3   |       |
| Nash. Chat. & St. L.      | 574      | 554    | 20   | .    | 3.6   | 359,905    | 397,487    | .         | 37,582    | 9.5   | 627                | 717    | .     | 90    | 12.8  |
| N. O. & Nor' east         | 195      | 195    | .    | .    | .     | 117,699    | 74,893     | 42,806    | 57.0      | 50    | 604                | 384    | 220   | 57.0  | 57.0  |
| Norfolk & Western         | 512      | 503    | 9    | .    | 1.8   | 426,631    | 438,377    | .         | 11,746    | 3.0   | 833                | 872    | .     | 39    | 4.5   |
| Rich. & Danville          | 757      | 757    | .    | .    | .     | 635,543    | 600,644    | 34,899    | 5.8       | 840   | 704                | 46     | 5.8   | 5.8   |       |
| Char. Col. & Aug.         | 370      | 339    | 31   | .    | 9.1   | 161,587    | 148,307    | 13,280    | 8.9       | 437   | 437                | .      | ..... | ..... |       |
| Col. & Greenville         | 296      | 296    | .    | .    | .     | 142,654    | 128,570    | 14,084    | 10.9      | 482   | 434                | 48     | 10.9  | 10.9  |       |
| Ga Pacific                | 318      | 288    | 30   | .    | 10.4  | 113,222    | 96,304     | 16,918    | 17.6      | 356   | 334                | 22     | 6.7   | 6.7   |       |
| Va. Midland               | 352      | 352    | .    | .    | .     | 203,900    | 216,705    | .         | 12,796    | 5.9   | 579                | 614    | .     | 35    | 5.9   |
| Western N. C.             | 280      | 228    | 52   | .    | 22.8  | 67,927     | 64,255     | 3,362     | 5.7       | 243   | 282                | .      | 39    | 13.8  |       |
| Shenandoah Valley         | 250      | 249    | 1    | .    | 0.4   | 84,421     | 114,644    | .         | 30,223    | 26.3  | 338                | 460    | .     | 122   | 20.6  |
| South Carolina            | 247      | 247    | .    | .    | .     | 241,104    | 262,899    | .         | 21,705    | 8.3   | 976                | 1,064  | .     | 88    | 8.3   |
| Vicks. & Meridian         | 132      | 142    | .    | .    | .     | 78,473     | 87,607     | .         | 9,134     | 10.4  | 553                | 617    | .     | 64    | 10.4  |
| Total, 23 roads..         | 11,149   | 10,788 | 361  | .    | .     | 8,384,214  | 8,002,196  | 566,205   | 184,187   | .     | 752                | 742    | 10    | .     | 1.4   |
| Total inc. or dec.        | .....    | .....  | 361  | .    | 3.3   | .....      | .....      | 382,018   | 4.8       | ..... | .....              | 10     | ....  | 1.4   | ..... |
| CENTRAL GROUP.            |          |        |      |      |       |            |            |           |           |       |                    |        |       |       |       |
| Chi. & Eastern Ill.       | 252      | 252    | .    | .    | .     | 232,358    | 223,801    | .         | 533       | 0.2   | 922                | 924    | .     | 2     | 0.2   |
| Chi. & West Mich.         | 410      | 410    | .    | .    | .     | 137,669    | 213,674    | .         | 76,005    | 35.5  | 336                | 521    | .     | 185   | 35.5  |
| Cin., Ind., St. L. & Chi. | 342      | 342    | .    | .    | .     | 371,940    | 293,004    | 78,936    | 26.9      | 1,088 | 857                | 231    | .     | 20.9  | 20.9  |
| Cin., Wash. & Balt.       | 284      | 284    | .    | .    | .     | 309,593    | 262,220    | 47,375    | 18.1      | 1,000 | 923                | 167    | .     | 18.1  | 18.1  |
| Cleve., Akron & Col.      | 141      | 141    | .    | .    | .     | 63,701     | 61,494     | 2,387     | 3.0       | 443   | 429                | 17     | .     | 3.9   | 3.9   |
| Connec. Valley            | 161      | 161    | .    | .    | .     | 42,273     | 42,813     | .         | 540       | 1.2   | 263                | 208    | .     | 3     | 1.2   |
| Det., Lan. & No. .        | 258      | 258    | .    | .    | .     | 134,921    | 185,565    | .         | 50,644    | 27.2  | 523                | 719    | .     | 196   | 27.2  |
| Ev. & Terre Haute         | 146      | 146    | .    | .    | .     | 100,141    | 93,011     | 7,130     | 7.7       | 686   | 637                | 49     | 7.7   | 7.7   |       |
| Flint & Pere Marq.        | 302      | 302    | .    | .    | .     | 274,114    | 378,267    | .         | 104,133   | 27.0  | 757                | 1,045  | .     | 292   | 27.0  |
| Ill. Cen., Ill. Lines     | 933      | 933    | .    | .    | .     | 940,650    | 930,085    | 10,574    | 1.1       | 987   | 970                | 11     | 1.1   | 1.1   |       |
| Ind., Bloom. & W.         | 690      | 696    | .    | .    | .     | 388,749    | 411,517    | .         | 22,768    | 5.5   | 538                | 501    | .     | 33    | 5.5   |
| Ohio Central              | 212      | 212    | .    | .    | .     | 150,753    | 170,547    | .         | 10,794    | 6.3   | 754                | 804    | .     | 50    | 6.3   |
| Ohio & Mississippi        | 615      | 615    | .    | .    | .     | 601,499    | 574,502    | 27,197    | 4.7       | 978   | 934                | 44     | 4.7   | 4.7   |       |
| Ohio Southern             | 130      | 130    | .    | .    | .     | 88,649     | 65,095     | 23,554    | 36.2      | 682   | 501                | 181    | .     | 36    | 2.2   |
| Peoria, Dee. & Ev.        | 254      | 254    | .    | .    | .     | 120,180    | 121,324    | .         | 1,144     | 0.9   | 473                | 477    | .     | 4     | 0.9   |
| St. L., Alton & T. H.     | 195      | 195    | .    | .    | .     | 184,442    | 246,600    | .         | 58,158    | 23.5  | 906                | 1,265  | .     | 299   | 23.5  |
| Main Line                 | 138      | 138    | .    | .    | .     | 131,083    | 132,403    | .         | 1,320     | 1.0   | 950                | 950    | .     | 9     | 1.0   |
| Belleville Line           | 61       | 61     | .    | .    | .     | 39,700     | 39,582     | 10,118    | 33.7      | 651   | 485                | 166    | .     | 33.7  | 1.0   |
| Tol., Ann. A. & N. M.     | 3,549    | 3,047  | .    | 98   | 2.7   | 2,413,612  | 2,536,397  | .         | 122,785   | 4.8   | 680                | 695    | .     | 15    | 2.1   |
| Total, 19 roads..         | 9,162    | 9,260  | .    | 98   | .     | 6,739,128  | 6,980,701  | 207,271   | 448,844   | .     | 736                | 754    | .     | 18    | 2.4   |
| Total inc. or dec.        | .....    | .....  | 98   | 1.1  | .     | .....      | .....      | 241,573   | 3.5       | ..... | .....              | 18     | 2.4   | ..... |       |
| NORTHWESTERN ROADS.       |          |        |      |      |       |            |            |           |           |       |                    |        |       |       |       |
| Bur. Ced. Rap. & No.      | 906      | 714    | 192  | .    | 27.3  | 426,256    | 415,827    | 10,429    | 2.5       | 470   | 582                | .      | 112   | 19.3  |       |
| Central Iowa              | 500      | 500    | .    | .    | .     | 170,679    | 209,114    | .         | 38,435    | 18.4  | 341                | 418    | .     | 77    | 18.4  |
| Chi. & Alton              | 850      | 850    | .    | .    | .     | 1,179,782  | 1,239,926  | .         | 60,144    | 4.9   | 1,388              | 1,459  | .     | 71    | 4.9   |
| Chi., Mil. & St.          |          |        |      |      |       |            |            |           |           |       |                    |        |       |       |       |



Published Every Friday.

## EDITORIAL ANNOUNCEMENTS.

**Passes.**—All persons connected with this paper are forbidden to ask for passes under any circumstances, and we will be thankful to have any act of the kind reported to this office.

**Contributions.**—Subscribers and others will materially assist us in making our news accurate and complete if they will send us early information of events which take place under their observation, such as changes in railroad officers, organizations and changes of companies, the letting, progress and completion of contracts for new works or important improvements of old ones, experiments in the construction of roads and machinery and in their management, particulars as to the business of railroads, and suggestions as to its improvement. Discussions of subjects pertaining to ALL DEPARTMENTS of railroad business by men practically acquainted with them are especially desired. Officers will oblige us by forwarding early copies of notices of meetings, elections, appointments, and especially annual reports, some notice of all of which will be published.

**Advertisements.**—We wish it distinctly understood that we will entertain no proposition to publish anything in this journal for pay, EXCEPT IN THE ADVERTISING COLUMNS. We give in our editorial columns OUR OWN OPINIONS, and those only, and in our news columns present only such matter as we consider interesting and important to our readers. Those who wish to recommend their inventions, machinery, supplies, financial schemes, etc., to our readers can do so fully in our advertising columns, but it is useless to ask us to recommend them editorially, either for money or in consideration of advertising patronage.

## THE ENGAGEMENT AND MANAGEMENT OF RAILROAD EMPLOYEES.

Good men, who have become acquainted with their duties and who perform them with faithfulness, are the most important of all the appointments of a railroad. It is a long process to educate a fresh man to a new place or to a new business; all the experience which the old hand has acquired is of value to his employer, so long as he continues to do well or to intend to do well; although too long continuance in one round of duties is apt to make a good man dull, and it is therefore advisable to make some change occasionally for all employés, promoting them if an opportunity presents, which will encourage not only them, but their associates, who then see that patient merit attains reward, even though slowly. Frequently, with a little trouble, a vacancy may be availed of to move several persons up one round of the ladder each, and conscientious managers find much pleasure in the larger number who can thus be made happy, at the same time that the service is benefited and strengthened. It is easier for indifferent managers to fill a place with the fewest number of changes.

The great advantage to the company of experienced men makes it a difficult matter, sometimes, to decide upon the most judicious course, when a disaster caused by the neglect or oversight of an employé calls for a judgment upon him. The disciplinarian would dismiss him from principle, believing that he had thereby taught a lesson to the remainder of the force; but it is doubtful whether the fear of dismissal has any effect upon the larger number of employés. Let the manager consider how it is with himself or with the other officers of the road; do they perform their duties because of fear, or because they have undertaken them and feel a manly pride in seeing them well done? There are sneaks, of course, among railroad employés as among officers, yet they are rare; the great majority are meaning to do their duty as they understand it.

The case of an erring employé should be tried upon its merits, with regard to the previous record of the employé, considered with reference to the interests of the company, and generally without regard to the other employés. Has this always been a careful, dutiful man? Did his fault arise from ignorance, forgetfulness, indifference or laziness? If from ignorance or misjudgment, did he use the best wits he had and do as well as he knew how? If so, he does not deserve great condemnation, even though he may have caused great damage. If from forgetfulness, not habitual, but instantaneous, as has often happened to switchmen and conductors, dismissal is no remedy; the remedy has been applied by the accident; he will be a safer man ever after. If the fault was from indifference or laziness, it is sure proof of a worthless character—that is, worthless for railroad purposes. Good conductors and excellent enginemen have forgotten for a dangerous interval their telegraph orders, and caused disasters; when pardoned because of their long and perfect records, they proved safe men and the most devoted servants of the company for years

after. It was not found that this leniency had a bad effect upon discipline as related to the other employés; on the contrary, these perceived the value which a good record might have for a man who fell into trouble.

All men must have some education in railroad operations before they will become experts, and in acquiring this they will make some mistakes likely to cause accidents and trouble; it would be a grave error on the part of the manager to discharge men who have had this education at his expense, to take on fresh men to be educated in the same way. We can imagine something of the state of a road upon which all the men should be new to railroad business, or, even if experienced men, new to the road. By the frequent discharge of employés, for trivial mistakes, some roads maintain a permanent approximation to this condition: their accidents are not thereby diminished in number.

The standard of character among employés may always be raised by slow degrees, but surely, if proper care is exercised in the hiring of new men; generally something can be learned about the character of every applicant; a wandering man without a certificate from his last place is not a desirable acquisition; and even a certificate requires to be scanned closely. If a man is employed upon a certificate from another road, it is a safe precaution to write to the officers of that road for private assurances; for, in the first place, many officers give unwarranted certificates, which they will not support in private correspondence; in the second place, there are men who make a business of furnishing certificates of character and recommendations for passes to any one who will pay for them, frequently stealing the genuine letter-heads and forging the office dating-stamp. The sons of industrious farmers in the vicinity of the road are usually glad to get employment, and are a healthy stock to recruit from, if judiciously selected.

Brakemen and firemen are two classes of men who require to be chosen with peculiar care, as it is from them that the conductors and enginemen are to be developed; and since they are really apprentices, with the largest pay that any apprentices receive in any trade, it is not worth while to throw away the valuable instruction they are to receive upon inferior characters. Upon brakemen a great responsibility is necessarily placed, from the first. A reliance upon them for faithful performance of their duties without good evidence of their responsibility would invite disaster. Firemen should be of a mechanical turn of mind, and ambitious to become enginemen; there are plenty of young men with these qualifications, and it is a waste to employ any others; they make the better firemen, of course, from their hope of advancement.

In filling vacancies, the best general policy is to promote deserving employés whenever there are such who are competent for the positions, and to fill up the ranks of apprentices in shops, stations and offices, as well as other minor appointments, from the families of old employés, so far as possible. The children of employés are in a sort of apprenticeship from their birth; they have opportunities for learning many details which others can only acquire after a considerable period of service; they are already attached to the road and its managers, if the management has been just; and this attachment may be of great value to the company; it is an inducement to continuous and faithful service, if the employés understand that these chances for a start in life are reserved for their children.

It does not admit of doubt that good service may be more promoted by rewards than by punishments; yet fines imposed for carelessness are a legitimate and effectual penalty, if due care is taken not to impose them unjustly, and the men will recognize the fairness of paying them, if within their means, when by carelessness they have caused damage. Rewards, however, are more stimulating; premiums for savings on engines, for superiority in maintenance of track, and promotions of the most deserving, without favoritism, encourage a generous strife for excellence. Heroic actions, or one of uncommon merit, should be acknowledged by a letter to the deserving employé, and it is all the better if accompanied by a small present in money. Such tokens of approval have been dear to men always; the railroad employé likes to show them, as a soldier does his medals.

Discipline is only maintained by careful attention to small details. The experience of armies shows that men do not fail in the important things until they have become negligent as to the less considerable. A superintendent, supervisor or foreman must therefore be continually looking for the small defects if he hopes to avoid the larger; nothing which is not exactly right should pass without remark; nor, if not immediately corrected, without a louder remark. It is probably not necessary to say that if the superior officer keeps

his temper, under whatever provocation, his determination to require perfect obedience will be more manifest and more felt than if he falls into a passion; at the same time he will be more comfortable himself.

The condition of enginemen and firemen, of conductors and brakemen, is apt to be forlorn when they are away from home; some provision should be made for them to sleep and eat in comfort; and a sitting-room where they can pass the dreary hours of waiting, amused with games or the newspaper, is necessary, if it is not preferred that they shall haunt the taverns. These arrangements can be made self-supporting, but the company must take the initiative and furnish a suitable building, which may be let to a landlord who will keep it upon terms dictated by the company, if that is thought best.

Employés' associations for any purposes, as for club-rooms, hospitals, insurance, lack the most important condition of success, which is a promise of permanence. Any employé, or a considerable number of them, may leave the road at any time, and the society may fail suddenly from want of support, or the employé may cease to benefit by his contribution because of his own removal; it is, therefore, important that the railroad company should be a subscriber to, or guarantor of, such associations as it would wish to encourage. So far as experience goes, it appears that the men are less interested in libraries and reading-rooms than in reasonable bodily comfort while living, and in benefits to their families in case of death or injury; a judicious manager can secure the hearty co-operation of the employés in any well-conceived undertaking which has these ends in view.

## LARGE GRAIN AND PROVISION EXPORTS.

In the exports of breadstuffs during the first two months of this year, New York has not maintained the rank it had last year, and neither has Boston, which had been gaining, but Philadelphia and Baltimore have made large gains. The percentage going from each port of the aggregate value of breadstuffs exported from the five ports named below this year and last was:

|           | New York. | Boston. | Phila. | Balt. | New Orleans. |
|-----------|-----------|---------|--------|-------|--------------|
| 1885..... | 49.0      | 10.2    | 11.9   | 23.1  | 4.0          |
| 1884..... | 54.1      | 16.2    | 7.3    | 18.3  | 4.1          |

The change is largely due to the larger proportions of the value formed by corn, which goes largely by Philadelphia and Baltimore. Corn made 23 per cent. of the total value this year, but only 16 per cent. last year; and flour, which made 37 per cent. of the value last year, made less than 31 per cent. this year. Most of the flour goes from New York and Boston. The flour and wheat exports were much greater this year than last, but the value of them was not increased in proportion, because of the much lower prices.

The exports of corn were larger this year in these two months than in the corresponding period of any previous year; the flour exports were also much the largest ever made in January and February; and even the wheat exports have never been quite equaled before at this season, which in view of what has been said of other countries supplying our markets deserves attention. The exports of each in these two months have been for 18 successive years:

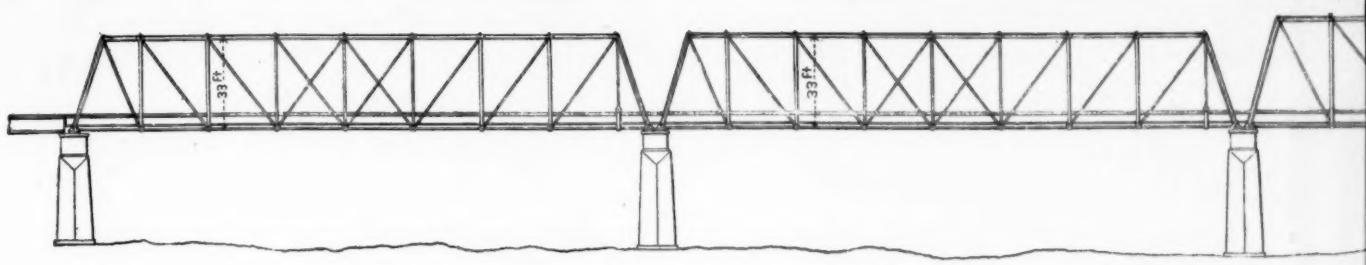
|           | Corn, bu.  | Wheat bu.  | Flour, bbls. |
|-----------|------------|------------|--------------|
| 1873..... | 4,035,617  | 5,040,447  | 348,403      |
| 1874..... | 3,509,298  | 9,328,581  | 691,456      |
| 1875..... | 5,228,254  | 5,413,225  | 630,525      |
| 1876..... | 9,218,213  | 5,364,461  | 509,670      |
| 1877..... | 19,582,678 | 4,671,386  | 474,144      |
| 1878..... | 13,450,203 | 11,388,721 | 705,043      |
| 1879..... | 12,697,771 | 12,539,895 | 913,931      |
| 1880..... | 13,019,743 | 11,002,056 | 848,484      |
| 1881..... | 7,196,800  | 15,873,190 | 1,310,006    |
| 1882..... | 4,089,745  | 12,575,345 | 1,044,815    |
| 1883..... | 9,633,406  | 12,836,644 | 1,852,986    |
| 1884..... | 5,648,200  | 9,018,722  | 1,474,098    |
| 1885..... | 14,159,399 | 16,071,912 | 2,018,655    |

We see thus that the good crops last year have had fully as great an effect on exports as could reasonably have been expected. The corn crop was but little greater than that of 1879, but the exports are 9 per cent. greater than in the corresponding months after that crop. The wheat crop was but little (2½ per cent.) greater than that of 1880, but the exports of wheat and flour together were equivalent to 25,152,000 bushels this year, against 21,170,000 then—an increase of nearly one-fifth. The very low prices of wheat and flour (corn has often been as low before) have prevented these very large exports doing the country as much good as they might have done; but they have done it a great deal of good, and that business has been no better has not been the fault of the grain exports. It would have been much worse if we had not had large surplus crops. They at least show that we are still able to supply the European demand, in spite of competition from India and Australia.

The exports of wheat were nearly twice as great in February as in January this year; of flour about three-eighths larger, and of corn a little larger. Wheat exports especially are usually the larger in January.

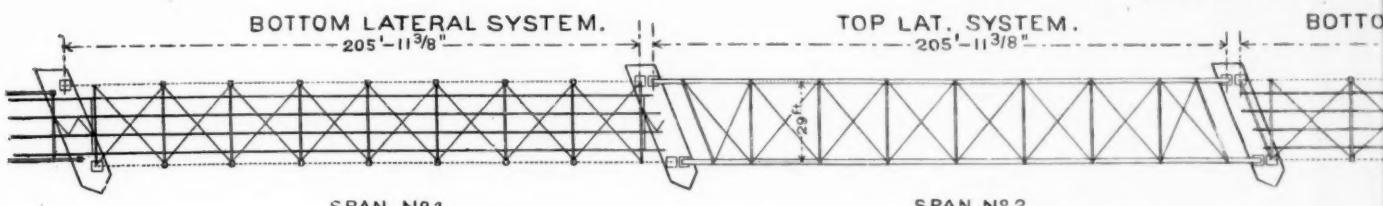
The exports of provisions, the product of hogs and

GENERAL ELE



50 10 20 30 40 50 60 70 80 90

GENERAL PL



BOTTOM LATERAL SYSTEM.

205'-11 3/8"

TOP LAT. SYSTEM.

205'-11 3/8"

BOTTO

SPAN N°1.

SPAN N°2.

ALLEGHENY RIVER CHANN

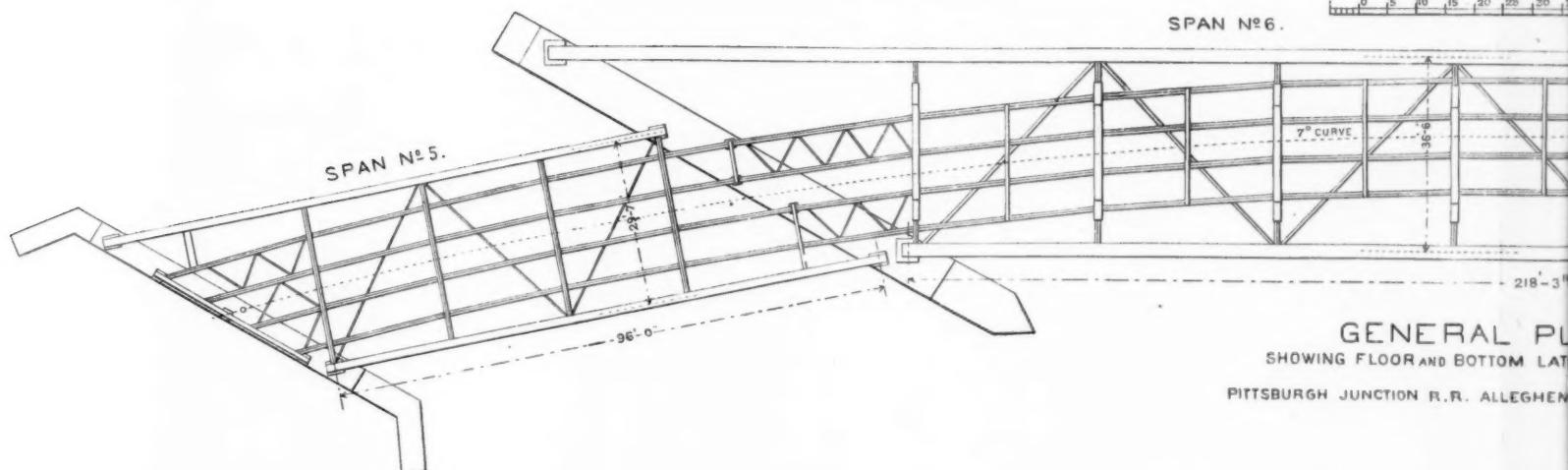
PLAN OF TOP LATERAL SYSTEM SP.N°6.

INCLINED END POST.

VERTICAL END POST.

0 5 10 15 20 25 30 35

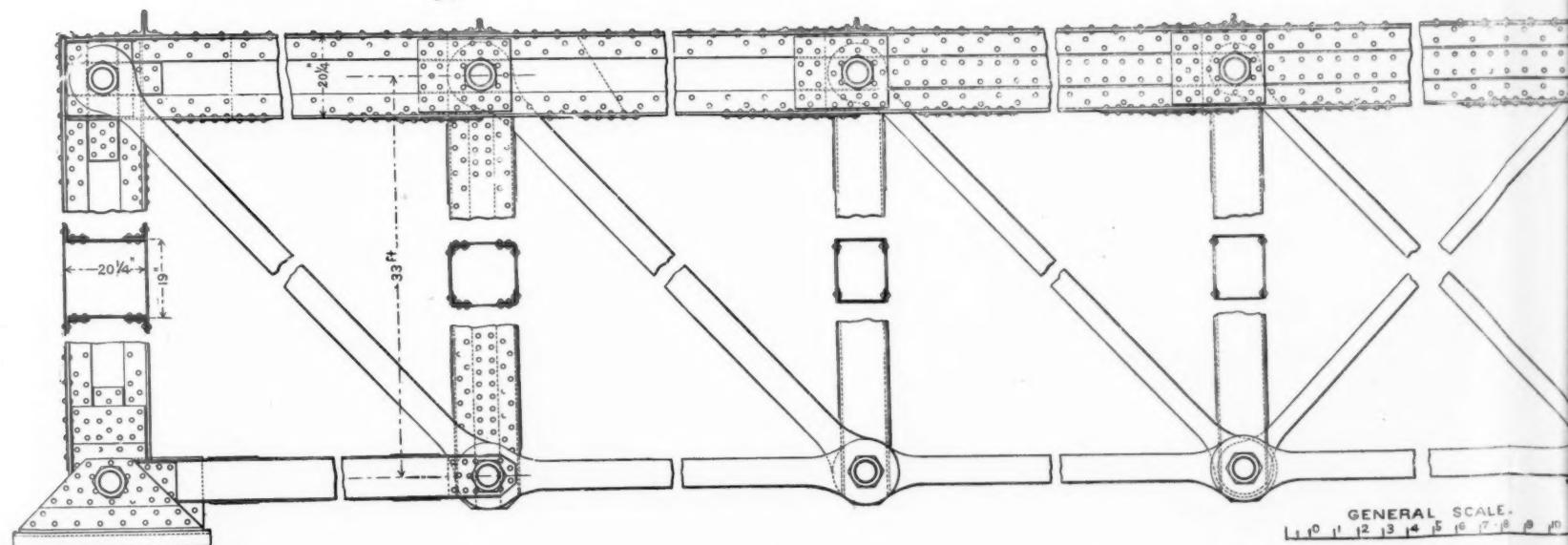
SPAN N°6.



GENERAL PL

SHOWING FLOOR AND BOTTOM LAT

PITTSBURGH JUNCTION R.R. ALLEGHEN

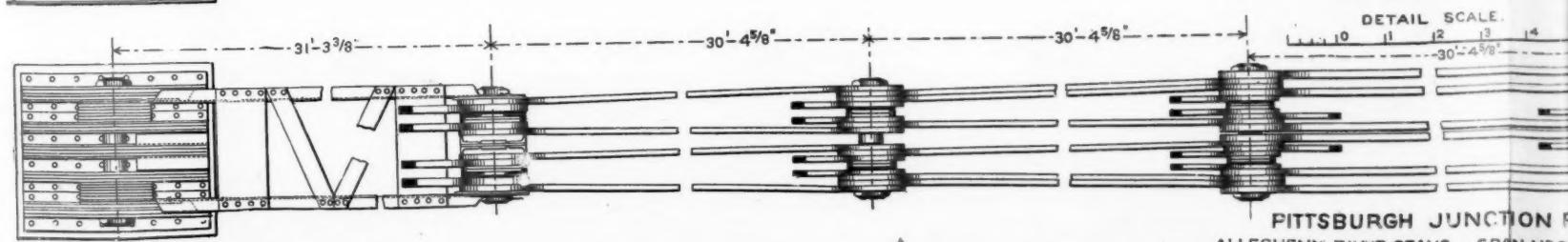


GENERAL SCALE.

1 10 1 12 1 3 1 4 1 5 1 6 1 7 1 8 1 9

DETAIL SCALE.

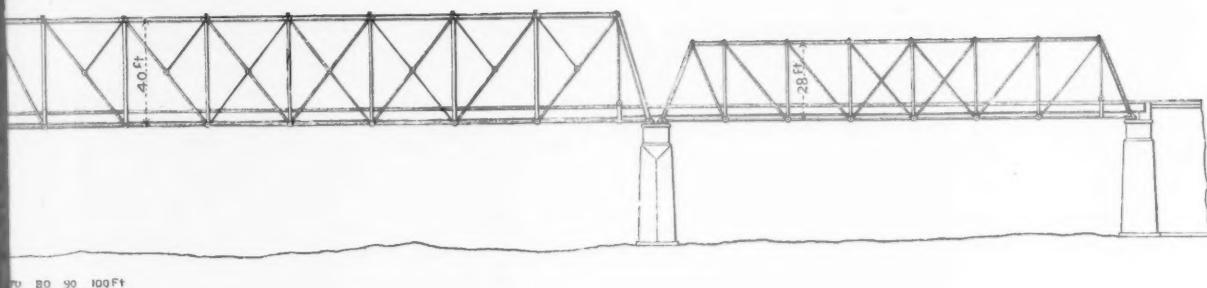
1 10 1 11 1 12 1 13 1 14



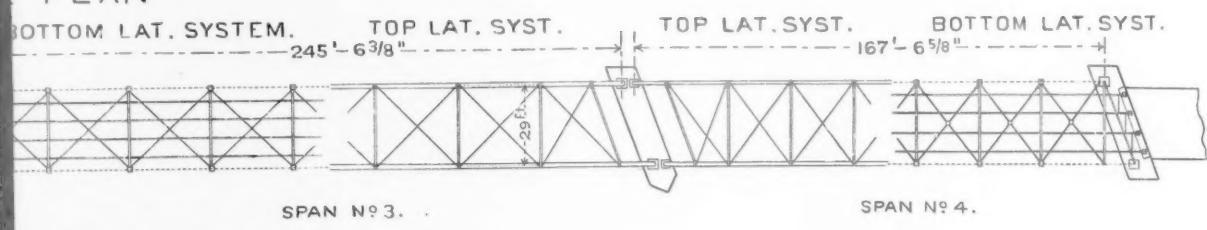
PITTSBURGH JUNCTION R  
ALLEGHENY RIVER SPANS SPAN N°6

ELEVATION.

FIG. 6.



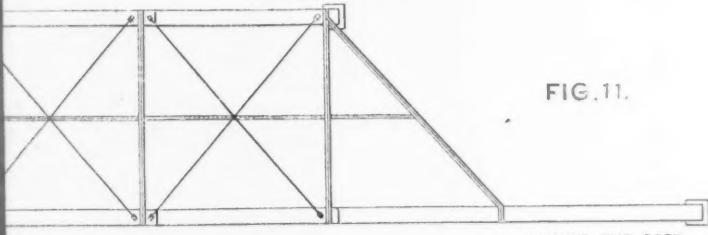
PLAN



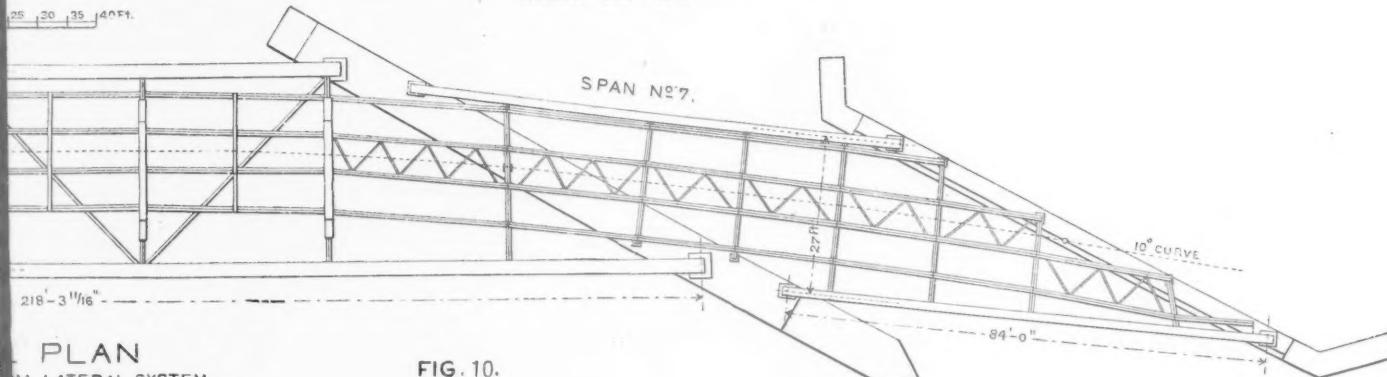
CHANNEL SPANS.

VERTICAL END POST.

FIG. 11.



INCLINED END POST.



PLAN

M LATERAL SYSTEM.

EGHENY RIVER SPANS.

FIG. 10.

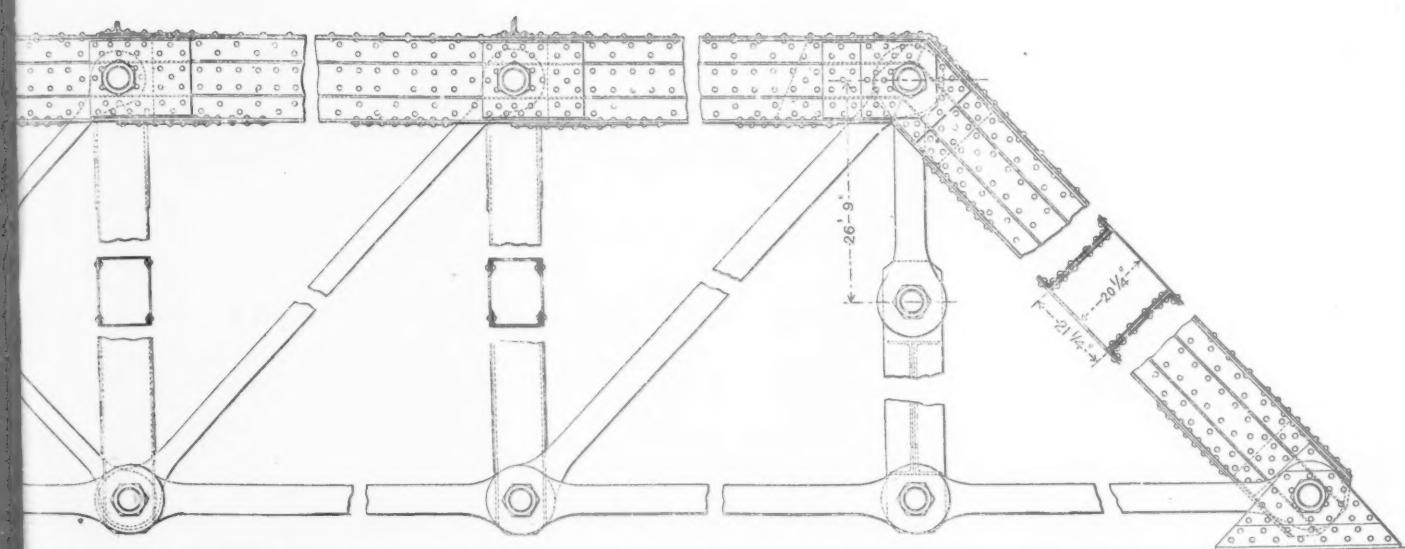
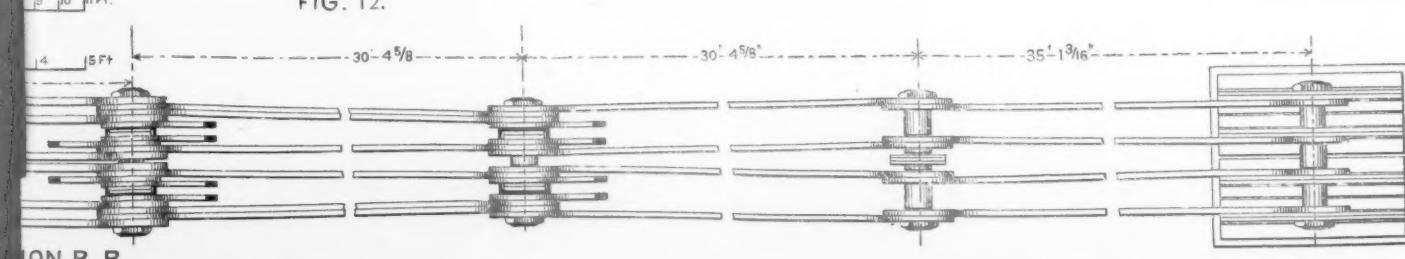


FIG. 12.



ION R.R.  
N°6 NORTH TRUSS.

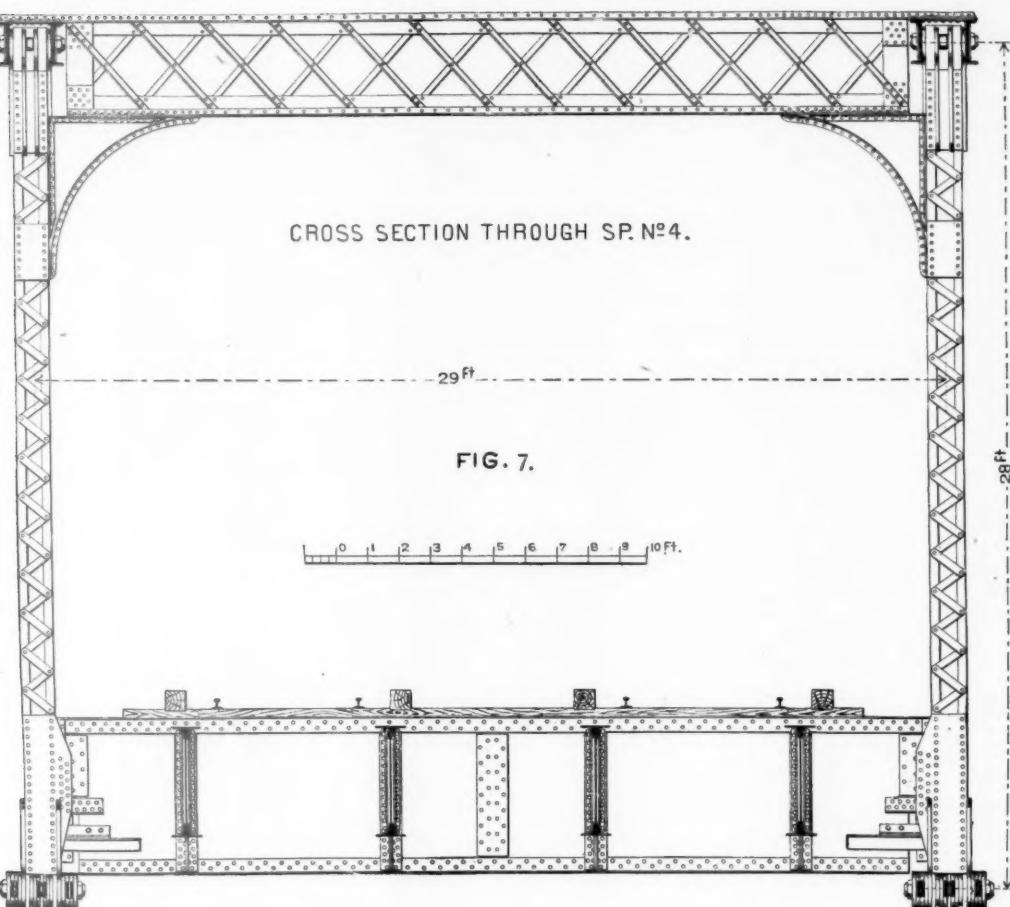
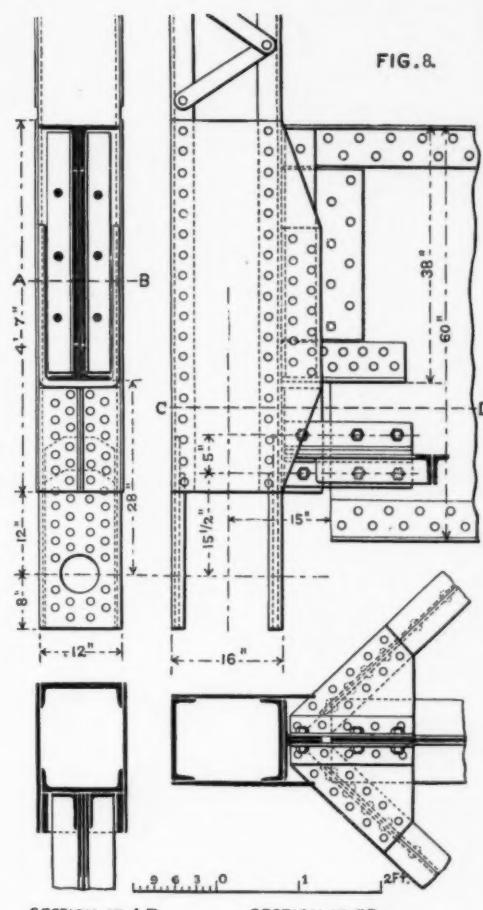
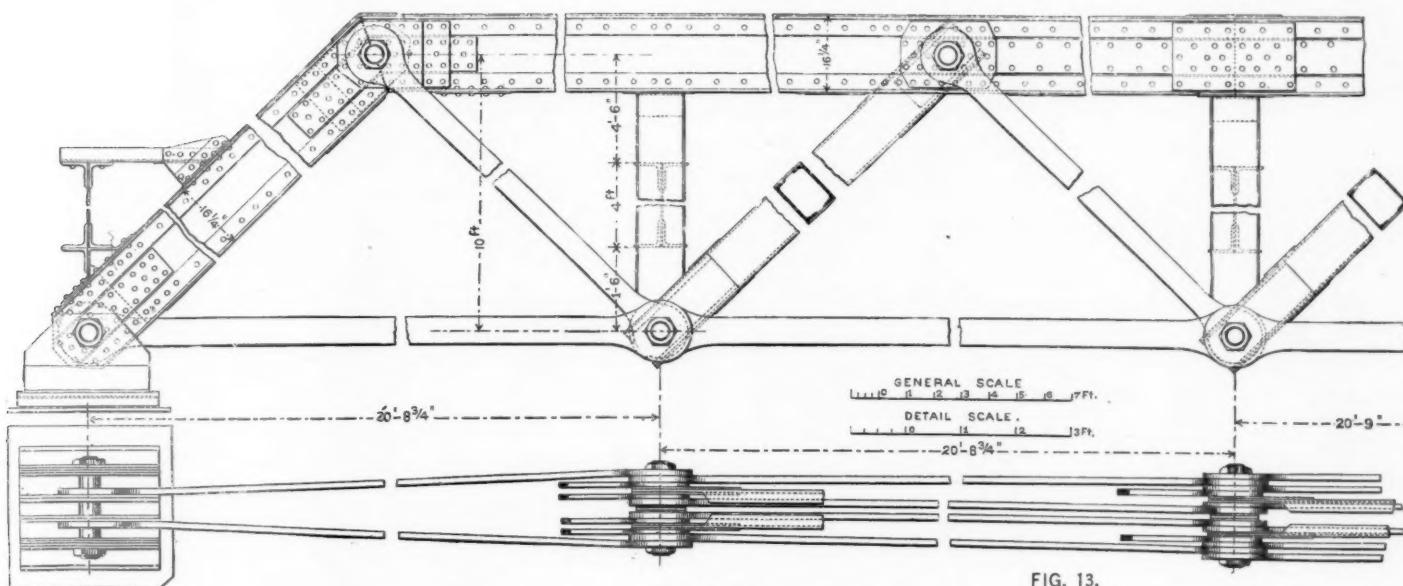


FIG. 7.

CROSS SECTION THROUGH SP. N°4.

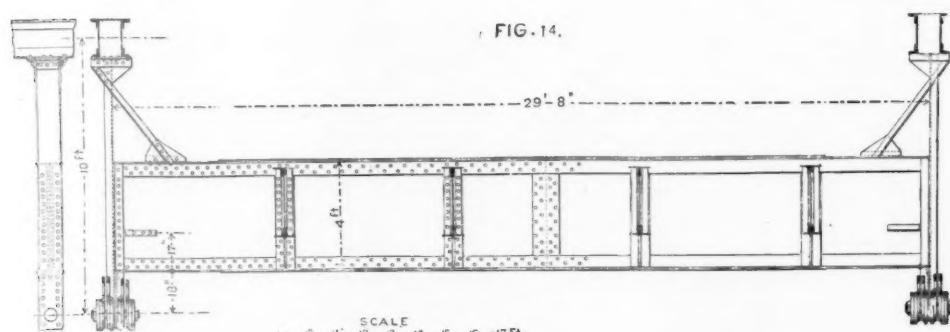


**Post of Span No. 6, with Floor Beam-Pocket and Lateral Connection.**



Span No. 5.

FIG. 13.



Cross-Section Through Span No. 5.

PITTSBURGH JUNCTION RAILROAD.



cattle, though much larger than last year in February, do not nearly equal those of some previous years. For the two months there is an increase over last of 57 per cent. in the quantity of hog products exported, but only a small increase in beef. In the value of all provisions exported there is an increase of \$3,340,459, or 21 per cent., there being an increase of more than that amount in the value of the hog products, and a decrease in the cattle products. For the two months, the exports of hog products in millions of pounds for eight years have been:

1877. 1878. 1879. 1880. 1881. 1882. 1883. 1884. 1885.  
139.7 203.8 255.6 192.4 284.5 176.7 152.2 110.9 173.6

Thus the exports this year, though 57 per cent. more than last year and 14 per cent. more than in 1883, were less than other years since 1877, and were 40 per cent. less than in 1881, and even 34 per cent. less than in 1878. That we have been able to export so much corn this year is probably due to the fact that we have had fewer hogs to fatten than in other years of large corn crops, but that we have been able to export so much wheat and flour has been in spite of the fact that we have a much larger population to supply with bread than when we made large exports in 1881; but the harvest of wheat was six months or more ago, and that we have had plenty to export in January and February has been due chiefly to the fact that we exported much less than in some other years of plenty for some months after harvest, and that at harvest we had a very large surplus left over from previous crops.

The fact chiefly to be borne in mind is that our grain exports have at last become very large, larger in quantity than in the exceptionally prosperous years 1880 and 1881. The provision exports are also increasing largely, though they remain much less than in several other years, and must until we can raise more animals. The effect of this on the business situation is not appreciated, because the result has been to prevent further depression instead of causing a distinct upward turn. If we look back at the figures for previous years we shall find that the heavy breadstuffs and provision exports began after the crop of 1877, but it was not until the fall of 1879, after two years of heavy exports, that the community generally was convinced that good times had come. The heavy exports in 1877-78 and 1878-79 were helping to bring them, however, and the large exports this year are also helping us, though not enough as yet to set all the factories at work and crowd the railroads with profitable traffic. For that we may have to wait some time yet

#### The Profits on Through Trunk-Line Freight.

The through freight traffic of the Cleveland, Columbus, Cincinnati & Indianapolis Railway last year was carried at an average rate of 0.525 cent per ton per mile, and the east-bound through freight at 0.495 cent—rates unknown elsewhere in the world, and utterly inadequate to the earning of interest on the cost of the cheapest railroad. This traffic forms nearly four-fifths of the freight traffic of this railroad, and nearly two-thirds of its traffic of all kinds, but it yielded last year only 47 per cent. of its gross earnings. Of course it is not possible to ascertain closely the cost of the through and local freight separately. The average expense per ton per mile of the whole was 0.516 cent, the average haul was but twice as great for through as for local freight (203.5 against 106.2 miles); and it therefore seems reasonable to suppose that the average cost of the local may have been as low as ½ cent per ton per mile, which is 65½ per cent. of the average rate received for local freight (1.018 cent). If so, \$1,469,000 of the total reported freight expenses were due to the through freight, making the average expense per ton per mile of this freight 0.474 cent, and the profit 0.051 cent, amounting to \$158,000 for the whole. What this means is, that in order to earn one cent toward paying interest on the cost of its railroad, this company last year had to haul a ton of through freight 20 miles; to earn a dollar, it had to haul a ton nearly 2,000 miles! Does any one believe that this is a rational or healthful condition of things, and should not railroad managers everywhere be encouraged and assisted to make efforts to remedy it? The public, perhaps, can look with indifference on the immediate result on this particular road, for the whole cost of this ridiculously cheap transportation so far has fallen on those unfortunate persons who have invested their money in this railroad; but the most indifferent public will certainly not object to measures which will tend to increase the profits on this business, and make them more nearly equal to the small profits obtained on the local business, so long as only a reasonable profit is secured on the whole business. This road's construction account is the moderate amount of \$50,200 per mile, but no return whatever could be

made on more than half of its capital last year, and the aggregate dividends paid on about \$15,000,000 of stock for ten years amount to but \$1,425,000.

While the patrons of this road have no reason to complain of the local rates they pay, the contrast between what the local freight and what the through freight contributes toward paying interest on the cost of the road is striking. The 310 million ton-miles of through freight, we have seen, contributed \$158,000, and the 87 millions of local freight paid \$308,000. And 42 million passenger miles, which is about equivalent to the local freight traffic, yielded \$377,632 of profit. The passenger traffic and the local freight traffic together, which formed about 36 per cent. of the total traffic, yielded about 81 per cent. of the net earnings. Well may Mr. Devereux say in his report that "the board has dwelt upon and thus emphasized the question of just freight rates as the one thing vitally affecting your corporate investments." To secure a reasonable price for carrying through freight is the great problem which railroad managers have to meet. If they cannot solve it, many hundreds of millions that have been invested in railroads must continue to go without interest. High rates for this traffic cannot be secured, and if they could be they would add to profits during but a very short time; for more lines would soon enter the field and divide the traffic; but the difficulty now is to get any profit. If the Cleveland road made only \$158,000 on all its through freight last year, including some which yielded 1½ cents per ton per mile, and with the lowest rates varying from ½ to 1 cent at different times of the year, how much did it make in the three months from March 21 to June 21, on the grain and flour carried then which yielded it probably not more than ½ cent gross per ton per mile? Doubtless a vast amount of the through freight last year yielded it no profit whatever. Very few railroads have as low working expenses as this one, and there is probably not one of the carriers of through trunk-line freight of which the same cannot be said—that they carry a large part of the traffic entirely without profit, and that the chief burden of supporting the roads, when they are supported, falls on the local traffic. Those of them which make fair returns now (if there are any) might considerably reduce their passenger or local freight rates if they could secure a reasonable price for carrying through freight.

We do not believe that this condition of things can last, in which one-third of the traffic of a railroad pays four-fifths of the interest on the investment, because through rates have been reduced so low as to leave next to no profit on the greater part of the business. The whole tendency of unrestricted competition, however, tends to this. One result, of course, is that the railroad companies resist any reduction of local rates where it is possible to control them. Some of them may sometimes have so much local business that they may make fair returns by maintaining high rates on it. Unfortunately for them, most of the railroads have no such sufficient resource. If they had, the public would complain, as it does now, that nearly all the profit was paid by a portion of the traffic, the growth of which, perhaps, is hindered by the unprofitable through rates.

#### February Earnings.

Our full table of railroad earnings in February has reports from 83 railroads, whose aggregate mileage and earnings and average earnings per mile were:

|                    | 1885.        | 1884.        | Inc. or Dec. | P. c.     |
|--------------------|--------------|--------------|--------------|-----------|
| Miles.....         | 58,837       | 57,112       | +            | 1,725 3.0 |
| Earnings.....      | \$22,755,886 | \$23,741,425 | -\$985,539   | 4.2       |
| Earn. per mile.... | 387          | 416          | -29          | 7.0       |

This is a worse showing than was made by the January table, when the decrease in total earnings was but 0.2 per cent., and in earnings per mile but 3.2 per cent., and it is also worse than the result in December; but the decrease in earnings per mile is less than any other month since last May. This is not, however, so favorable as might be thought, for last year there was a considerable decrease compared with 1883, and in 1883 a small decrease compared with 1882.

This year 47 of the 83 roads reporting had a decrease in total earnings, and 52 had a decrease in earnings per mile.

#### The four railroads northwest of St. Paul report:

|                    | 1885.       | 1884.       | Increase.      | P. c. |
|--------------------|-------------|-------------|----------------|-------|
| Miles.....         | 6,871       | 6,036       | 835 13.6       |       |
| Earnings.....      | \$1,426,825 | \$1,206,802 | \$220,023 18.2 |       |
| Earn. per mile.... | 208         | 200         | 8 4.0          |       |

All but the Manitoba had a gain both in total earnings and in earnings per mile.

Four other Far Western roads report an increase of 2.9 per cent. in total earnings and of 7.8 per cent. in earnings per mile, there having been a decrease in their mileage. The Utah Central shows a large loss; the Central Pacific only a trifling one, in spite of a large decrease in mileage. The two Denver roads

show large gains over the very light earnings they had last year. The Central Pacific's earnings for five years in February have been:

| 1881.       | 1882.       | 1883.       | 1884.       | 1885.       |
|-------------|-------------|-------------|-------------|-------------|
| \$1,454,218 | \$1,720,675 | \$1,465,952 | \$1,402,571 | \$1,397,000 |

Thus there is but one year in which the earnings were much larger than this year, though in all they were somewhat larger. The mileage was considerably greater than now in 1883 and 1884, about the same in 1882, and 8 per cent. less in 1881.

The other railroads west and northwest of Chicago, 14 in number, in the aggregate return:

| Miles.....         | 1885.       | 1884.       | Inc. or Dec. | P. c. |
|--------------------|-------------|-------------|--------------|-------|
| Earnings.....      | \$4,324,322 | \$4,554,523 | -\$230,201   | 5.1   |
| Earn. per mile.... | 293         | 320         | -27          | 7.4   |

In January these roads had a decrease of but 1.8 per cent. in the total and of 4.9 per cent. in earnings per mile. Four of the roads in February had a decrease of 22 per cent. or more in earnings per mile—the Burlington, Cedar Rapids & Northern, the Green Bay & Winona, the Iowa lines of the Illinois Central, and the Milwaukee, Lake Shore & Western. Five of the roads earned less than \$200 per mile; the Green Bay & Winona, only \$87. These are the roads that suffered most from snow blockades.

The eight roads west and southwest of St. Louis that report form but a small part of the whole in that territory. They make a better showing than any other group, as follows:

| Miles.....         | 1885.   | 1884. | Increase. | P. c. |
|--------------------|---------|-------|-----------|-------|
| Earnings.....      | \$3,208 | 3,057 | 151       | 4.9   |
| Earn. per mile.... | 290     | 271   | 19        | 7.0   |

Here the chief part of the gain was by the new Kansas City, Springfield & Memphis road, whose earnings per mile last February were larger than those of any other road in the group except the Fort Scott & Gulf, which also had a large increase, as also the Texas & St. Louis. There was a large decrease on the Gulf, Colorado & Santa Fe. In January these roads as a whole had a smaller increase.

South of the Ohio and the Potomac and east of the Mississippi 23 railroads report, as follows:

| Miles.....         | 1882.  | 1884.  | Inc. or Dec. | P. c. |
|--------------------|--------|--------|--------------|-------|
| Earnings.....      | 11,149 | 10,788 | + 361        | 3.3   |
| Earn. per mile.... | 363    | 376    | -13          | 3.5   |

In January, 21 of these roads had an aggregate increase of 11.3 per cent., and an increase of 7.3 per cent. in earnings per mile—much better than in February. In the latter month the large increases were 34½ per cent. on the Chesapeake, Ohio & Southwestern, 22½ on the Cincinnati Southern, and 6½ on the New Orleans & Northeastern. The largest decreases were 12½ per cent. on the Chesapeake & Ohio, 15 on the Southern Division of the Illinois Central, 19½ on the Nashville & Chattanooga, 14 on the Norfolk & Western, 23½ on the Western North Carolina, 34½ on the Shenandoah Valley, 15½ on the South Carolina, and 18½ on the Vicksburg & Meridian.

We now come to the field occupied by the western connections of the trunk lines, east of the Chicago & Alton Railroad, north of the Ohio and west of Pennsylvania, though none of the principal connections of those roads report. Twenty roads in this territory had:

| Miles.....         | 1885.   | 1884. | Decrease. | P. c. |
|--------------------|---------|-------|-----------|-------|
| Earnings.....      | \$9,548 | 9,646 | 98        | 1.0   |
| Earn. per mile.... | 344     | 362   | 18        | 5.0   |

This may give a very imperfect idea of the decrease in this territory, as the most important roads, such as the Michigan Central, the Lake Shore, the Fort Wayne and the vast western system of the Pennsylvania Railroad are not included. That they did much worse than last year, however, is not so certain. The Pennsylvania statement of the deficiency in meeting liabilities of its system in February indicates but a very small reduction in net earnings. Through rates were better last year, it is true, but through east-bound traffic was lighter. There were large gains this year by roads that carry some through freight, as 37 per cent. by the Cincinnati, Indianapolis, St. Louis & Chicago, 32 by the Cincinnati, Washington & Baltimore, 17½ by the Ohio & Mississippi, with a decrease of 29 per cent. by the Alton & Terre Haute main line, and of 14 per cent. by the Wabash. The three lumber roads in the lower peninsula have very large decreases—42, 36 and 32 per cent. The February earnings of some of the lines in this group for five years have been:

| 1881.                       | 1882.       | 1883.       | 1884.       | 1885.       |
|-----------------------------|-------------|-------------|-------------|-------------|
| Wabash... \$813,374         | \$1,134,768 | \$1,070,758 | \$1,285,314 | \$1,104,048 |
| Ill. Cen... 443,670         | 540,608     | 447,420     | 441,554     | 452,150     |
| O. & Miss... ....           | ....        | 283,900     | 253,001     | 290,081     |
| In. Bloom... 165,326        | 189,652     | 202,931     | 212,832     | 190,713     |
| W. N. C. main line 101,826  | 102,153     | 128,766     | 132,157     | 93,400      |
| Cin. I. St. L. & C. 165,552 | 188,072     | 141,256     | 122,683     | 168,406     |

Thus it seems that the Wabash earnings were unusually large last year, and not unusually small this year, when, too, it worked 98 miles less road than before. The Illinois Central's earnings were larger than in any other year except 1882; the Ohio & Mississippi's large gain this year little more than made up for its large loss

last year; the Terre Haute Main Line earned less than in any other year, and the gain of the Cincinnati & Indianapolis road, though it made the earnings 37 per cent. more than last year, and 19 per cent. more than in 1883, left them 10 per cent. less than in 1882, and but 2 per cent. more than in 1881.

Eighteen roads in this group in January had a very slight decrease in earnings.

Passing now to the roads east of Ohio and north of the Potomac, we have reports from ten, showing:

| Miles         | 1885.       | 1884.        | Inc. or Dec. P. c. |
|---------------|-------------|--------------|--------------------|
| .....         | 8,551       | 8,373+       | 178 2.1            |
| Earnings..... | \$0,640,027 | \$7,751,271- | \$911,244 11.8     |

Earnings per mile..... \$60 926 126 13.5

All the roads in this group except the New York, Susquehanna & Western had a decrease in February. The rate of decrease was largest on the Grand Trunk and the Hoosac Tunnel & Western. Last year most of these roads had a small increase. We have heretofore noted the course of the earnings from year to year on the Pennsylvania. The Northern Central's February earnings have been:

| 1881.     | 1882.     | 1883.     | 1884.     | 1885.     |
|-----------|-----------|-----------|-----------|-----------|
| \$382,657 | \$413,551 | \$486,865 | \$308,012 | \$389,048 |

Thus they were smaller this year than in any other year since 1881. The Grand Trunk's for four years have been:

| 1882.       | 1883.       | 1884.       | 1885.     |
|-------------|-------------|-------------|-----------|
| \$1,120,750 | \$1,286,855 | \$1,297,147 | \$909,348 |

This road is so much affected by through rates and traffic that we compare below its decreases in successive months:

| Oct.          | Nov.      | Dec.      | Jan.      | Feb.     |
|---------------|-----------|-----------|-----------|----------|
| Amount.....   | \$186,455 | \$298,809 | \$139,765 | \$30,904 |
| Per cent..... | 11.2      | 18.2      | 9.7       | 3.5      |

The percentage of decrease was thus larger in February than in any previous month, while in January it was the smallest for a long time. This road, however, suffered very greatly from snow this year—very much more than any of the other trunk lines. Generally, however, February was a bad month, probably, for the Eastern roads, without regard to snow. The chief suffering from the weather, so far as gross earnings are concerned, was by the roads west of Chicago, and to a less extent by some of the roads next east of it. Net earnings were affected over a larger territory, the very severe weather increasing expenses where it did not much affect traffic.

Generally, February was characterized by very low through rates, especially on passengers and west-bound freight, by snow-blockades which interrupted traffic for several days in the month in a limited district, by a heavy movement of farm produce eastward in the North, by a light movement of factory freight, merchandise, and lumber, and probably by a lighter passenger movement than for some years previous. February usually is the worst month of the year for railroad earnings. This year the comparison with last year is made the more unfavorable because there was one more day in the month last year, and it required 3½ per cent. more earnings per day to make the same earnings per month.

At the meeting of the Western connections of the trunk lines in Chicago last Wednesday it was resolved that the business west of the western termini of the trunk lines (Buffalo, Pittsburgh, etc.), north of the Ohio River and far enough west to take in Milwaukee, Chicago, Joliet, Seneca, Streator, Peoria and the Illinois and Mississippi River as far south as St. Louis ought to be pooled, and that the lines in this territory by co-operating could maintain the rates in it, and it was voted to restore the 20-cent rate on grain and flour April 6, and to make arrangements for dividing the business.

The report now received does not mention the means proposed for affecting these desirable ends, and everything, of course, depends upon that, as the resolutions will not execute themselves.

We noted some two months ago that the West Shore road first began to carry a considerable proportion of the grain and flour received at New York last September, and that it increased its proportion until in December it delivered nearly a sixth of the whole rail receipts. The Lackawanna had carried a little more than 7 per cent. of the whole down to September, and it did not increase this share much until December, when it carried 10.7 per cent. In January the Lackawanna carried a much larger share than ever before, namely, 15.8 per cent., and the West Shore more than in any other month except December and perhaps November, and the inroads the two new roads made in the total business was serious. It is probable, however, that the large movement over both roads was secured only by making rates lower than could be obtained over other trunk lines, for in February, when the roads met each other's cut rates freely, the proportion going over the new roads was very greatly reduced. Their progress in securing this traffic will appear from

the following statement of the percentage of the whole New York rail receipts of grain and flour delivered by these two roads in the first seven months of 1884 and in each month since:

| July 31. | Aug. | Sept. | Oct. | Nov. | Dec. | Jan. | Feb. |
|----------|------|-------|------|------|------|------|------|
| 13.8     | 12.0 | 17.6  | 18.4 | 22.0 | 26.3 | 29.4 | 14.6 |

Thus from August to January they increased steadily month by month their proportion of this business, but in February it fell off one-half at once, probably because these roads were then no longer able to offer an advantage in rates. Their proportion in February, indeed, was considerably less this year than last.

A reorganization of the New York, West Shore & Buffalo Company is proposed, by the terms of which the first-mortgage bondholders will receive first preferred stock for the face of their bonds and unpaid coupons (\$55,000,000), and new first-mortgage bonds to the amount of \$25,000,000 will be issued, with which to pay the receivers' debts, some other debts for real estate, etc., purchase the terminal property at Weehauken, which is now owned by a separate company, and for the completion and improvement of the road. Second preferred stock to the amount of \$15,000,000 is to be used for settling the claims of the North River Construction Company and other creditors, and \$40,000,000 of common stock will be exchanged for the present stock.

This is in striking contrast to what was held forth when the present bonds were offered. It was said then that they, bearing a yearly interest of only \$3,500,000, would be the only charge on a railroad equal to the New York Central, which was then paying more than \$7,000,000 in dividends, over and above its fixed charges. Before the road was completed, however, it appeared that there would be another charge for the use of the New York terminus, which was mortgaged for \$12,000,000 by the company owning it, and there were other debts which now it seems necessary to provide for by the new first mortgage, and the road is not finished, so that it is proposed to put \$25,000,000 ahead of the present first mortgage. And it does not even appear that the interest on this can be earned. No reorganization should be made which does not keep the fixed charges down to an amount which the road can certainly earn. But the bondholders are entirely unable to judge whether the plan offered is a proper one, because they are not informed what the claims are which it is proposed to prefer to theirs and cover with the new bonds, nor what the result of the operation of the road under the receivership has been. Not even the report to the Railroad Commissioners for the quarter ending with December last has been made yet. The bondholders should have a full account of the condition of the property and of its needs, the nature of the claims against the company which it is proposed to pay, and of the results of the working of the road down to date, before they are asked to do anything. The men appointed on the Reorganization Committee are of the highest character, but the plan of reorganization seems to have been completed before they were appointed, and the character of the committee does not make it any the less true that the bondholders ought not to be asked to take so important a step in the dark.

A receiver has been appointed for the New York, Chicago & St. Louis Railway, on the application of the second mortgage bondholders, who are presumably the Vanderbilt interest. The petition for a receiver says there are \$6,846,000 of the second mortgage bonds issued, \$1,046,000 having been sold and the remainder pledged as collateral for advances, and that there is a large floating debt.

This is, we believe, the first instance of a Vanderbilt road going into a receiver's hands while under the Vanderbilt management. When a controlling interest in the stock of the road was bought for the Lake Shore, less than two years and a half ago, it was taken for granted that, whether profitable or unprofitable, the interest on all the bonds would "be taken care of." The first mortgage bonds had sold from 83 to 96; they went up as high as 109 in 1884, and the second mortgage bonds have been quoted at 91. As the Lake Shore had paid \$6,527,000 for a controlling interest in the stock, it was evident that it would not willingly permit the control so obtained to be taken from it by a foreclosure of a mortgage, and it was assumed that what the Lake Shore wanted to do it would be able to do.

It is, therefore, pretty good evidence that the people who control the Lake Shore and through it the New York, Chicago & St. Louis find that the latter is in a hopeless case, or they would not suffer it to go into bankruptcy. There is not only the loss of the Lake Shore's large investment, but the injury to the financial

prestige, which is not only a matter of pride, but of very substantial advantage whenever capital is to be raised for any of the numerous companies in which these men have large interests.

And it must be said that the prospect of the company's earning interest on its bonds does seem very remote. As we showed two weeks ago, the deficit in 1884 was more than half a million. But there can hardly be a question that the cost of working the road heretofore has been much less than it will be hereafter. It was built with great rapidity, and was substantially all new when opened about the beginning of 1883. Renewals of ties and rails can hardly have begun yet, nor renewals of the long timber trestles, which will cost heavily, if not replaced with earth-work or structures more durable than wood. In order to keep the road going a good deal will have to be done to it within the next three or four years, and there is nothing to do it with—no profits and no credit.

It does not yet appear what those who control this road propose to do with it after foreclosure or reorganization. It is presumable that they hope to keep the control of it. After having the Lake Shore pay \$6,527,000 for the control, it would be a sad confession of failure should this control be permitted to fall into any but friendly hands. Doubtless "friendly hands" hold the second-mortgage bonds, as few others could be tempted to take them, but a foreclosure of this mortgage would leave the larger part of the yearly charges unchanged—namely, the \$15,000,000 of first-mortgage and \$4,000,000 of equipment bonds. These are probably widely scattered, and if foreclosed there is no telling where the control of the road would go. They may be asked to accept a lower rate of interest, but having a first-mortgage on the road they may not respond. Then if they sue for foreclosure, the only way to keep the control will be to purchase the first-mortgage bonds, while they are low pending the reorganization.

#### February Accidents.

The record of train accidents in January, given in another page, contains brief accounts of 61 collisions, 136 derailments, and 19 other accidents; 216 accidents in all, in which 44 persons were killed and 259 injured.

Fourteen collisions, 9 derailments and 2 other accidents caused the death of one or more persons; 8 collisions and 29 derailments caused injury, but not death. In all, 25 accidents caused death and 37 injury, leaving 154, or 71 per cent. of the whole number, in which no injury to persons is noted.

In the 61 collisions there were 23 persons killed and 57 injured. In the 136 derailments, 18 persons were killed and 202 injured; while the 19 other accidents caused 3 deaths, but injured no one.

Of the persons killed 27, and of those injured, 69 were railroad employees; the others (17 killed and 190 hurt) were passengers, or other persons riding on the cars, several tramps, or unauthorized passengers, being included both among the killed and injured.

As compared with February, 1884, there was an increase of 106 accidents, of 22 persons killed, and of 109 injured.

These accidents are classed as to their number and causes, as follows:

| COLLISIONS:   |    |
|---------------|----|
| Rear.....     | 38 |
| Butting.....  | 21 |
| Crossing..... | 2  |
|               | 61 |

| DERAILMENTS:                    |     |
|---------------------------------|-----|
| Broken rail.....                | 34  |
| Broken frog.....                | 6   |
| Broken switch-rod.....          | 3   |
| Broken bridge.....              | 3   |
| Spreading of rails.....         | 9   |
| Broken wheel.....               | 15  |
| Broken axle.....                | 5   |
| Broken truck.....               | 2   |
| Broken draw-head.....           | 1   |
| Dropped brake-beam.....         | 1   |
| Accidental obstruction.....     | 3   |
| Land-slide.....                 | 1   |
| Wash-out.....                   | 1   |
| Snow or ice.....                | 20  |
| Wind.....                       | 1   |
| Misplaced switch.....           | 6   |
| Purposely misplaced switch..... | 2   |
| Rail purposely removed.....     | 1   |
| Malicious obstruction.....      | 1   |
| Unexplained.....                | 20  |
|                                 | 136 |

| OTHER ACCIDENTS:                          |    |
|---|----|
| Boiler explosion.....                     | 2  |
| Flues collaps'd.....                      | 1  |
| Broken parallel rod.....                  | 10 |
| Broken wheel, not causing derailment..... | 4  |
| Broken truck, not causing derailment..... | 1  |
| Car burned while running.....             | 1  |
|   | 10 |

Total..... 216

The chief cause of collisions was mistake, or misunderstanding in train orders, to which 7 accidents are charged and several more were probably due. Six collisions were caused by snow, four by misplaced switches, three by trains breaking in two, three by wreck of preceding train, and one by fog.

A general classification of these accidents may be made as follows:

|                              | Collisions. | Derailments. | Other. | Total. |
|------------------------------|-------------|--------------|--------|--------|
| Defects of road .....        | 3           | 24           | 18     | 45     |
| Defects of equipment .....   | 48          | 6            | 54     |        |
| Negligence in operating..... | 10          | 26           | 1      | 37     |
| Unforeseen obstructions..... |             | 5            |        | 5      |
| Maliciously caused.....      |             | 20           | ..     | 20     |
| Unexplained .....            |             |              | ..     | 216    |
| Total .....                  | 61          | 136          | 10     | 216    |

Negligence in operating is charged with 25 per cent. of all the accidents; defects of road with 25½, and defects of equipment with 21 per cent.

A division according to classes of trains and accidents is as follows:

| Accidents:                    | Collisions. | Derailments. | Other. | Total. |
|-------------------------------|-------------|--------------|--------|--------|
| To passenger trains.....      | 10          | 60           | 18     | 88     |
| To a pass, and a freight..... | 16          | 76           | 1      | 153    |
| To freight trains.....        | 25          | 76           | 1      | 112    |
| Total.....                    | 61          | 136          | 19     | 216    |

This shows accidents to a total of 277 trains, of which 114 (41 per cent.) were passenger and 163 (59 per cent.) were freight trains. This is probably much above the true proportion of passenger trains, as in a month like the last a very large number of slight accidents, snow derailments and such like, happening to freight trains are likely to escape record.

Of the total number of accidents, 138 are recorded as happening in daylight and 78 at night.

The number of accidents is the largest which we have recorded for many months, and is easily explained by the severe weather and the many snow storms, which made the month a more trying one to railroad men than any which they have experienced for several winters. Although the number of accidents was so large, there were comparatively few serious ones, most of them, as will be seen from the record, being of slight nature. The most prominent feature in the record is the large number of broken rails, which caused nearly one-sixth of the whole number of accidents. This is a pretty sure indication of the severity of the winter, as we have often noted heretofore.

Master mechanics will note with interest the considerable number of accidents resulting from broken parallel rods. While these are seldom of a very serious nature, they generally cause expensive damage to locomotives and frequently result in vexatious delays. It is of interest to note that on some lines, where there are many trains and high speed, no accidents of this kind are recorded. Whether this is due to any particular form of rods in use is a fair subject for discussion.

There were five accidents maliciously caused; in two of them switches were misplaced, and in two rails removed, while in the fifth the train-wreckers resorted to the old expedient of placing obstructions on the track.

For the year ending with February the record is as follows:

| Accidents.                       | Killed. | Injured. |
|----------------------------------|---------|----------|
| March.....                       | 115     | 26       |
| April.....                       | 88      | 19       |
| May.....                         | 73      | 32       |
| June.....                        | 71      | 40       |
| July.....                        | 89      | 25       |
| August.....                      | 89      | 38       |
| September.....                   | 100     | 21       |
| October.....                     | 105     | 39       |
| November.....                    | 90      | 47       |
| December.....                    | 105     | 24       |
| January.....                     | 145     | 24       |
| February.....                    | 216     | 44       |
| Total.....                       | 1,295   | 379      |
| Total, same months, 1883-84..... | 1,545   | 435      |
| " " " 1882-83.....               | 1,395   | 394      |
| " " " 1881-82.....               | 1,372   | 425      |
|                                  |         | 1,613    |

The yearly average for the four years was 1,402 accidents, 408 killed and 1,733 injured. The monthly average for last year was 108 accidents, 32 killed and 151 hurt.

The averages per day were, for the month, 7.71 accidents, 1.57 killed and 9.25 hurt; for the year, 3.55 accidents, 1.04 killed and 4.96 injured.

The average casualties per accident for the month were 0.204 killed and 1.199 hurt; for the year they were 0.293 killed and 1.398 injured.

The Chicago through shipments of flour, grain and provisions eastward for the week ending March 28 were somewhat less than the week before. The number of tons then, and of the through shipments of all freight in corresponding weeks of previous years, were:

| 1880.  | 1881.  | 1882.  | 1883.  | 1884.  | 1885.  |
|--------|--------|--------|--------|--------|--------|
| 87,690 | 45,738 | 34,335 | 57,094 | 80,860 | 71,082 |

The shipments of the week in 1880 were the largest ever made until last year in April. This year's shipments, however, were very large, and possibly, when all freights are included, as large as last year.

The total tons shipped and the percentage going by each railroad in each of the last six weeks have been:

| Tons:          | Feb. 21. | Feb. 28. | Mar. 7. | Mar. 14. | Mar. 21. | Mar. 28. |
|----------------|----------|----------|---------|----------|----------|----------|
| Flour.....     | 8,906    | 15,549   | 17,153  | 20,600   | 23,753   | 20,236   |
| Grain.....     | 22,887   | 30,913   | 36,354  | 38,989   | 47,087   | 41,805   |
| Provisions.... | 8,044    | 6,706    | 7,474   | 7,086    | 5,134    | 6,041    |

| Total..... | 39,837 | 53,168 | 60,981 | 66,675 | 75,974 | 71,082 |
|------------|--------|--------|--------|--------|--------|--------|
|------------|--------|--------|--------|--------|--------|--------|

The decrease last week from the previous week is 15 per cent. in flour and 5 per cent. in grain, while there is an increase of 18 per cent. in provisions.

The percentages vary much from their usual course, the Lake Shore and the Chicago & Atlantic carrying very little, and the Michigan Central a great deal. The three Vanderbilt roads together carried 43.8 per cent. of the whole; the two Pennsylvania roads 35.5 per cent. The Grand Trunk is still below in pool proportion, but carried more than in most recent weeks. The two Pennsylvania roads carried 57 per cent. of the flour, a very much larger share than usual. The Nickel Plate carried most provisions—25 per cent.—which also is unusual. The two Pennsylvania roads carried comparatively little provisions, of which they are usually the largest carriers unless the Grand Trunk captures the busi-

ness. It seems that some shipments have been taken at 17½ cents, and perhaps most of them.

The railroads, it appears, have completed an agreement concerning transcontinental rates and traffic, so far as they are concerned, but the co-operation of the Pacific Mail Steamship Company seems not to yet to have been assured. The Union and Central Pacific had given notice that they would cease to pay it the subsidy in return for which it maintained certain rates, and if it makes such rates as it pleases it can keep them unsatisfactorily low. Negotiations are in progress as we write, however, and very likely an agreement will have been made before this appears. It does not seem reasonable that the railroads should pay the steamship company as much as they used to. They paid in order to secure a certain profit from the business. The profit possible to secure has now been greatly reduced, and the railroad companies have been getting much less for their money than was expected when the contract was made.

The new "Southern Pacific Company," which takes under lease the several railroads forming the Southern Pacific route west of New Orleans, and the whole Central Pacific property, seems to be an organization something like the Pennsylvania Company, except that its stock is owned by individuals instead of a corporation. The unity of control so secured has been exercised heretofore through the practical ownership of the several lines by the same people; but a disruption was always possible, and the death of a few of leading stockholders might have been the occasion of a division of ownership which could prevent unity in the management of the lines. The new company virtually consolidates the roads for the term of the lease.

The new company owns controlling interests in the roads forming the line from the Pacific to New Orleans, and in the steamship line between New Orleans and New York, or any of them, or simply leases them. The enormous capital (\$100,000,000) suggests that the chief holders of the stocks of the several roads may have exchanged these stocks for shares of the Southern Pacific Company, which would give it the permanent control of the roads irrespective of any lease. The lease of the Central Pacific is for a rental, the minimum of which is to be \$1,200,000 and the maximum \$3,600,000 over the fixed charges. The lessee company owns no Central Pacific stock. There is room in such an arrangement to make it greatly for the advantage of the lessee to take the traffic by one route rather than another. Generally, it may be expected that the lessee will encourage the movement over that route which will yield the largest profit, while the total profit may be greater by another route, of which the lessor gets more.

Gen. Joseph E. Johnston, the new United States Commissioner of Railroads, is 78 years of age. He was an officer of engineers in his early life, but the position does not call for much engineering knowledge, the only direction in which the Commissioner is able to be of much practical service being in connection with the debts which the subsidized Pacific railroads owe to the government, which amount to an immense sum already and increase yearly. The Commissioner is the government's agent to see that the companies report their earnings fully and accurately, and pay the sums required by law, and should be able to advise as to the policy to be followed with regard to securing the final payments of the debt. General Johnston was for some years after the war an officer of an insurance company, and if he has some of the knowledge of accounts required of the actuaries of such companies, it will be of great use in the position, which calls for first-class railroad accounting ability.

An interview with General Palmer, President of the Mexican National Railroad, reported in the *Two Republics* of the city of Mexico, gives a somewhat rosy view of the prospects of that line, making it appear as if the difficulty of deciding "which proposition of the many will be accepted" for closing the uncompleted gap in the main line, was all that caused delay. If General Palmer can only inspire capitalists with his own enthusiasm over "the splendid showing (as follows) which the year 1884 has rolled up," and cause them, like himself, to feel "highly gratified" as well as "surprised," no doubt this gap will soon be closed; but we should imagine that investors would share more fully in his surprise than in his gratification:

| Southern main line.        | Northern main line. | Southern branches. | Northern branches.  |
|----------------------------|---------------------|--------------------|---------------------|
| Miles operated.....        | 311                 | 404                | 75                  |
| Gross earnings.....        | \$160,267           | \$138,984          | \$23,985            |
| Net earnings.....          | 30,855              | 23,950             | 1,088 (Loss, 3,886) |
| Per cent. expenses.....    | 81.7                | 82.8               | 95.5                |
| Earn. per mile, gross..... | \$541               | \$344              | \$320               |
| " " " net.....             | 99                  | 59                 | 72                  |
|                            |                     | 13                 | (Loss, 57)          |

When a man is so easily gratified as to be pleased with this showing, it is a pity that his feelings should ever be hurt by disappointment, and it would seem hardly likely that they ever will be. The earnings of the Mexican Central road, when in 1883 it was operating "stub-ends" of almost precisely the same length, compare as follows:

| Miles operated.....       | Southern end. | Northern end. |
|---------------------------|---------------|---------------|
| Earnings: commercial..... | \$828         | \$4,940       |
| " company fr't.....       | 2,998         | 1,280         |
| " total.....              | \$3,826       | \$6,220       |
| Per cent. expenses.....   | 51.0          | 58.8          |

Reasonable arguments may be advanced, however, why the cost of completing the gap in the main line of the National (which is less than 300 miles of mostly very light work) should be a paying investment (for the owners of Mexican National) even if the property as a whole is a very poor one, as it will make a line 400 to 500 miles shorter than the Mexican Central to most of the leading

traffic points of the United States. There are also reasonable grounds for hoping for a considerable development of traffic on both the Central and National lines, although the Central does not appear to have profited much so far from its through traffic; since its earnings are at present at the rate of but little more than \$3,000 per mile, and grow slowly, though they do grow.

One of Mr. Webb's three-cylinder compound locomotive will be exhibited at the forthcoming Inventions Exhibition in London. It is to be regretted that American manufacturers and inventors seem very generally to have neglected so good an opportunity of exhibiting the products of American ingenuity. The exhibition, like its predecessors the "Fishes" and the "Healtheries," will probably be visited by between three and four million persons, an enormous audience for an exhibition devoted to a special subject.

Arrangements have been made for a fast train from Paris to St. Petersburg via Berlin. The distance is 1,680 miles, which is to be made in 58 hours. The fastest previous time, we believe, was about 65 hours. The new service is to begin in April.

#### Record of New Railroad Construction.

Information of the laying of track on new railroads in the current year is given in the present number of the *Railroad Gazette* as follows:

*Fort Worth & Denver.*—Track laid to a point ten miles north of Wichita Falls, Tex., an extension of 4 miles.

This is a total of 4 miles, making 169 miles thus far reported for the current year. The new track reported to the corresponding date for 14 years past has been:

| Miles.                       |
|------------------------------|
| 1885..... 169   1878 .....   |
| 1884..... 380   1877 .....   |
| 1883..... 705   1876 .....   |
| 1882..... 1,353   1875 ..... |
| 1881..... 682   1874 .....   |
| 1880..... 887   1873 .....   |
| 1879..... 317   1872 .....   |

This statement covers *main track only*, second tracks and sidings not being included.

#### NEW PUBLICATIONS.

*Locomotive Engine Running and Management.* A Treatise on Locomotive Engines, showing their Performance in Running different kinds of Trains with Economy and Dispatch; also Directions regarding the Care, Management, and Repairs of Locomotives and all their Connections. By Angus Sinclair. New York: John Wiley & Sons, 1885.

This is eminently a practical book for practical men, and belongs to a class of literature which is distinctively the product of the present era in mechanical development. It is intended to, and does, supply to locomotive runners the most explicit and detailed direction for managing locomotives, all given in language which is very clear and easily understood. The character of the book is perhaps best described by its table of contents. The following are the titles of the chapters: Engineers and their Duties; How Locomotive Engines are Made; Inspection of the Locomotive; Getting Ready for the Road; Running a Fast Freight Train; Getting Up the Hill, Finishing the Trip; Running a Fast Passenger Train; Hard-steaming Engines; Shortness of Water—Pump Disorders; Injectors; Boilers and Fire-boxes; Accidents to the Valve Motion; Accidents to Cylinders and Steam Connections; Off the Track; Accidents to Running-gear; Connecting-rods, Side-rods, and Wedges; The Valve Motion; The Shifting Link; Setting the Valves; Laying out Link-motion; The Stephenson Valve-gear; The Joy Valve-gear; The Steam Engine Indicator; The Westinghouse Air Brake; The Eames Vacuum Brake; Power of Locomotive and Train Resistances; Water for Locomotive Boilers; Examinations for Locomotive Engineers.

All these topics are very fully discussed, not in a merely superficial way, as is too common in books of this class; but the author, who has been a locomotive runner, and has had charge of what Americans call a round-house, and Englishmen the running-shed, on a prominent Western railroad, has discussed and treated them very thoroughly. In the latter position his duties familiarized him with all the disorders to which locomotives are subject in service. As a consequence of his intimate knowledge of the subjects on which he has written, they are all discussed and explained in a way which at once satisfies the reader that the writer has an adequate knowledge of what he is writing about. He handles his topics as a skillful mechanician does his tools, knowing exactly what they will do, and how they must be used to do it. There is almost an entire absence of any evidence of compilation, which is the bane of many technical books. The information given is most of it derived from actual experience and direct knowledge of the subjects treated of.

The chief fault of the book is that it is in some places too much diluted. There are scattered through it too many common-place and obvious remarks.

Take as an example the following paragraph on "shortness of water":

"Deficiency of steam with a locomotive that is expected to get a train along on time is a very trying condition for an engineer to endure. But a more trying and more dangerous ordeal is want of water. When steam is employed as a means of applying power, water must be kept constantly over the heating-surfaces while the fire is incandescent, or their destruction is inevitable. With a boiler which evaporates water rapidly, and in such large quantities as that of the locomotive, the most perfect feeding apparatus is necessary. Nearly all locomotives are well supplied in this respect. Good pumps or efficient injectors provide the engineer with excellent appliances for feeding the boiler under ordinary circumstances. But conditions sometimes occur when the best of pumps, or the most reliable of injectors, fail to force water into the boiler."

Even the most immature fireman might, after reading this paragraph, ask to be told something he does not know.

Another sentence of this kind in its obviousness approaches the comic. In speaking of the reasons why boiler-feeding apparatus will not work sometimes, the author says: "The most natural cause for pumps or injectors ceasing to work is absence of water from the tender." This recalls the old story of the candidate who was being examined to ascertain his competency for the position of assistant engineer in the navy. After he had answered all conceivable questions with reference to what he would do in case the pumps refused to work, finally there came a poser, to which he answered that in that event he would look over the ship's side and see whether there was any water in the ocean.

For the class of people for which this book is intended, diffuseness is less of a fault, though, than a lack of explicitness. The author seems to have, in a remarkable degree, the capacity of placing himself in a mental attitude towards the subjects about which he writes, that a person who knows nothing about them would occupy. This is a rare faculty, and absolutely essential in a writer of elementary technical books of this kind. There is, happily, in this book an almost entire absence of fine writing, a fault which mars the books of Michael Reynolds on kindred subjects. Nevertheless, Mr. Sinclair occasionally gives rein to his imagination, as in the following sentence, from the chapter on "Water for Locomotive Boilers":

"During the stupendous operations of Nature in building up this continent, the rocks have been subjected to vast disintegrating agencies; they have been torn and eroded by huge masses of ice; they have been burned by the rays of the unshadowed sun; fractured by the congealing power resulting from deep-reaching frost; melted by water—that most universal solvent in nature; then scattered far and wide by ice and flood."

There are symptoms of foaming here, to prevent which the author advises young engineers to "shut off, ascertain the height of solid water and open the surface blow."

On page 68 the writer says: "Under all circumstances, while the water and steam remain in the same vessel, their temperature is the same. This is an acknowledged law of physical science; yet every locomotive engineer of reflection, who has run on a hilly road, knows that circumstances daily happen when the law does not hold good." An illustration is then given of the effect on the boiler pressure of "pumping up" an engine after it has passed over the top of a grade. The subject is dealt with in such form as to leave the impression that there is a discrepancy between the physical law and actual experience. As a matter of fact, the law is not fully stated. It is true that the temperature of water and steam, at atmospheric pressure as indicated by a thermometer, are both the same. But it should be stated further that the quantity of heat in a pound of water at 212°, and in a pound of steam at the same temperature, is vastly different. By heating water to 212°, it will not be converted into steam. It must not only be heated to 212°, but a large additional amount of heat must be added thereafter to convert the water into steam. As Rankine calls it, this is the "heat of gasification." This does not seem to be adequately explained in Mr. Sinclair's book.

On page 235 the author makes the statement that "accelerating the release and compression along with the cut-off is very detrimental to the economical operating of locomotives that run slow." This will probably be disputed by quite a number of eminent engineers. In fact, attention has of late been called to the rather remarkable economical effects which result from compression, and it has been suggested that the power of engines might be regulated by variable compression, instead of variable admission, or possibly by both. There can be no doubt that the popular idea of the ill effects of compression, which is inseparable from the link motion, is a mistake. It is often assumed that the power or work done in compressing the confined steam is lost. Instead of this being the case, it is a source of economy in filling the clearing spaces and ports with steam of boiler pressure, and thus saving an expenditure of live steam which would be required to fill them if they were empty at the beginning of the stroke. It is obvious, too, that the compressed steam, barring some slight losses from radiation, etc., will give out as much power on the return stroke as was required to compress it during the advancing stroke. Even if the pressure of the confined steam were to exceed that in the boiler, there would be no loss, were it not that in forcing its way into the steam-chest it lifts the slide valve, and thus allows live steam to blow through into the exhaust.

Still another statement advanced by the author will be questioned by some readers. On page 241 he speaks of the slips of the block in the link as being deleterious if the slip is very great. Years ago, some designers of link-motions took the greatest pains to reduce the slip to the lowest possible limits, and some do even now. So eminent an authority as the late Mr. Wm. S. Hudson, of the Rogers Locomotive Works, took the ground that the slip of the block is a most efficient means of modifying the movement of the links, when it is otherwise not satisfactory. He and others have argued that it is of slight importance whether the block slips much or little, and inasmuch as the slip cannot be entirely prevented, it is best to utilize it for some purpose. In the Joy gear the motion of the valve is produced by the action of a sliding block.

It seems almost wrong, however, to find these minor faults with a book which, as a whole, is so good. It is altogether the best book in the English language on locomotive running and management, and it would be very difficult to improve it for the class of persons for whom it is intended. It should be in the hands of every locomotive runner and fireman, and steps should be taken to examine them with reference to its contents, to make sure that they not only have the book, but that they also have a thorough knowl-

edge of its contents. It is pathetic at times to see the efforts which young men, who have had few advantages of education, make to improve themselves. Generally they have little money and perhaps less knowledge of books, or of their value. They must make considerable sacrifice to buy even a few books. Often this sacrifice is made and books bought, which, after they have been obtained are found to be practically useless for the purpose for which they are needed. It is therefore a pleasure to be able unhesitatingly to commend this book of Mr. Sinclair's to all who are engaged or expect to engage in the occupation of running locomotives.

#### TRADE CATALOGUES.

##### Catalogue of the American Brake Company, St. Louis, Mo.

This handsome volume, the need for which is evident from the list given in it of 106 different lines using the company's brakes, gives similar information to that in the catalogue of the Westinghouse Brake Company, which has been issued from time to time for so many years, and in a similarly neat and thorough way. How many of the roads given are using the brake on all their equipment and how many partially or experimentally is not stated, but the showing is certainly a handsome one in any event.

The company shows four forms of steam driver brakes, the "horizontal cylinder" (recommended for general use), in which pressure is direct from a double-piston cylinder upon the brake-shoes; the "upright cylinder," or "bell-crank," for use when the space between the drivers is too narrow for the above; the "spring toggle," an upright cylinder with a toggle-joint, having spiral springs interposed instead of the rigid cam toggle of the Westinghouse driver brake, and another form with two brake-shoes to each driver (to avoid pressure on the bearings), which is not recommended. A steam tender brake is also supplied, the price of engine and tender brake complete being \$200.

The company also manufacture a compression freight car brake, furnished at \$15 per car complete, of the performance of which, however, no definite and specific records are given. The catalogue says of it that the company "will simply state in a general way that a train of 25 or more loaded cars at a speed of 25 miles per hour on a descending grade can always be brought to a full stop within its length." As a difference of 26 ft. per mile, or  $\frac{1}{2}$  per cent., in the grade will increase but about 20 per cent. the demand upon the brake-power to accomplish this feat, it is either an understatement of what can be done on easy grades or an over-statement of what can be done on heavy grades. In fact, on an easy grade of say 26 ft. per mile descending, this guaranteed performance is no feat at all, since it requires a net brake-power of less than 3 per cent. of the total weight of the train, or say 25 per cent. of the total weight of engine and tender, which is but little, if any, more than may be obtained from engine and tender alone.

#### TECHNICAL.

##### Locomotive Building.

The New York, Lake Erie & Western shops at Susquehanna, Pa., last week turned out four new Mogul engines for the road. They will soon begin work on six more of the same class, and 10 consolidation freight engines.

The Delaware, Lackawanna & Western shops at Kingston, Pa., have recently built and put into service a new Mogul engine with cylinders 19 by 24 in. and driving wheels with 45% in. centres. The boiler is made from Otis steel and has 198 semi-steel flues 2 in. outside diameter and 138 in. long. The firebox is 34 in. wide inside and 10 ft. long, and has straight side-sheets. The engine will burn anthracite coal and will be used for freight service. It was designed by Mr. Charles Graham, Master Mechanic, and is similar to other engines now in use on the road.

The Delaware, Lackawanna & Western shops in Utica, N. Y., are building two heavy passenger engines for the road. They have 18 by 24 in. cylinders, and driving wheels 6 ft. in diameter. One of them is just completed and the other is well advanced.

##### The Car Shops.

The Laclede Car Manufacturing Co. in St. Louis, has increased its force and expects to increase it still further. The company has about 40 cars for street railroads now under construction.

The Huntingdon Car works at Huntingdon, Pa., recently completed a large order for cars for the Florida Railway & Navigation Co. The works are now closed, but it is expected that the stoppage will only be temporary.

The Pullman Car Shops in Pullman, Ill., are just finishing up 45 cars for the Brooklyn Elevated road, and have received another order for 45 more for the same road.

The Peninsular Car Co. in Detroit is now turning out 15 freight cars a day, and will soon run up to 20 a day. The company has contracted with the Wabash road to build 390 box cars, 250 stock cars and 10 furniture cars. A contract with the Fremont, Elkhorn & Missouri Valley calls for 250 flat cars, 500 stock cars and 15 cabooses. It will also build 5 refrigerator cars for the Northern Pacific, 10 cabooses for the Kansas City, Fort Scott & Gulf, 40 cabooses for the Chicago & Northwestern, 200 stock and 15 refrigerator cars for the Chicago, St. Paul, Minneapolis & Omaha.

#### Bridge Notes.

The Columbia Bridge Co. in Dayton, O., has taken contracts for two highway bridges near Oil City, Pa., one over Sugar Creek and the other over Oil Creek.

##### Iron and Steel.

Springfield Furnace at Williamsburg, Blair Co., Pa., has gone out of blast and will probably be pulled down.

Messrs. Block & Pollak have bought the plant, etc., of the Cincinnati Steam Forge Co., which has been idle for several months, and will resume work at once, making car axles, shape work, etc.

Falcon Furnace at Miles, O., is getting ready to go into blast shortly.

The Western Forge & Tool Works, a new corporation, is building a mill in St. Louis.

Akron Furnace, at Buchtel, O., went into blast recently.

W. H. Everson & Co. have started up their rolling mill at Scottdale, Pa.

The Calumet Iron & Steel Co. has its works in Cummings,

Ill., in full running order, and has started up the puddling and plate mills and the rail mill.

The Cleveland Rolling Mill Co. in Cleveland, O., is running on a large contract for steel rails for the Cleveland, Columbus, Cincinnati & Indianapolis road.

#### Manufacturing and Business.

Mr. J. M. Foster has received an order to introduce his appliances for cooking with gas on the Mann boudoir cars running on the Cincinnati, New Orleans & Texas Pacific lines between Cincinnati and New Orleans and Cincinnati and Jacksonville. Gas for this purpose is taken from the same cylinder which supplies the car with light. The Pennsylvania Railroad recently put in two of the Foster gas compressors in Philadelphia, and their operation has been found so successful that a third one has been ordered to be put up in Pittsburgh.

It is stated that Cahill & Wagner in Chattanooga, Tenn., have taken a contract to supply all castings needed in the shops of the Cincinnati, New Orleans & Texas Pacific lines.

#### The Rail Market.

*Steel Rails.*—The *Iron Age* says: "The market has not shown much activity, but prices are steady, and on light sections a shade firmer. Leading mills in Pennsylvania are well supplied with orders, and, unless at from \$27.50@\$28, they are not much inclined to enter into new engagements. On the whole, therefore, the market may be called firm, although there is great activity for the time being."

*Rail Fastenings.*—Quotations continue nominal at 1.90@\$2 cents per pound for spikes in Pittsburgh; 2.25@\$2.60 for track-bolts, and 1.60@\$1.70 cents for splice-bars, with light demand.

*Old Rails.*—Old iron rails are held at \$18 per ton at tide-water, with \$17@\$17.50 bid, with very few sales. Pittsburgh quotations are \$19@\$19.50 for American rails. Old steel rails are quoted at \$16@\$17 per ton, according to length.

#### Cranes in Workshops.

An English exchange states: "We have lately been through a large engineering works, every department of which was fitted with its own overhead traveler, and in some shops two, as well as jib cranes at the corner of all recesses and bays, and one to nearly each machine; and at the same time we noticed almost an entire absence of laborers. We were informed, on inquiry, that although there were about 600 workmen, and very large and unwieldy pieces of work are handled, a mishap rarely occurs. In fact, the crane power is so complete that a cylinder or other casting can be lifted from the sand by one crane, passed on its round from foundry to planing machine, boring machine, erecting shop, and finally loaded for its destination without once touching the ground. The overhead travelers are generally driven by power, often by an endless rope, thus only requiring the services of one handy laborer to control its actions, while with the jib crane one machine-man often assists his neighbor for the few minutes the work is in crane, thus almost entirely dispensing with unskilled labor, except for yard work."

#### Locomotives for Export.

The *American Machinist* states that the Baldwin Locomotive Works are only working half of their ordinary force half-time, and that but three of the engines on hand are for American railroads. The foreign demand is, however, brisk, numerous engines having been shipped to Brazil, Peru, New Zealand and New South Wales. A geared engine is building for a mountain railroad in Peru. A model locomotive, train and railroad has just been completed for the Japanese Government. The locomotive, a complete miniature Baldwin standard eight-wheel bituminous coal-burner, weighs about thirty pounds and runs on a track eight inches wide, power to run being obtained by a coiled spring. A combined baggage, express and mail car, an ordinary passenger car, a chair car, with handsome lady's boudoir, and a Pullman sleeper, form a train of model cars fitted up with every convenience. They are finished in most handsome style, and the roofs can be taken off to let any one examine the inside properly. The engine pulls this train over a track about 50 ft. long, which is provided with switches, signals and all the requisites of a first-class railroad.

#### Cost of American Cars in Australia.

A return recently laid before the Legislative Assembly of New South Wales gives the cost of first-class American saloon cars on the railways in that colony as \$5,070 each, and second-class of the same pattern \$3,900 each. These figures probably include the cost of shipment, landing charges and erection in the colony.

#### THE SCRAP HEAP.

##### Railroad Sanitation and Cholera.

The Illinois State Board of Health has issued the following circular to officers of railroad companies under date of March 27:

"In connection with the sanitary survey of the state and the house-to-house inspection now being prosecuted under direction of the State Board of Health, with reference to the probable advent of Asiatic cholera, your attention is respectfully called to the great good which, at little expense, you may accomplish in two directions—First, in a practical cleaning-up and abatement of all possible nuisances upon your own premises; and, second, in furnishing an object-lesson in sanitary work to the various communities along the line of your road.

"The spread of Asiatic cholera is due oftener to the pollution of the water-supply than to any other cause. There is no commoner mode of such pollution than through foul, badly-constructed and improperly-located privies and water-closets. The disease, in this country, being always due to importation, and its spread being, most commonly, by persons traveling from place to place, it follows that railway privies and water-closets are especially exposed to the danger of cholera-infection. In view of these facts, it is earnestly requested that you cause all such places in connection with stations, freight-houses, shops and round-houses to be at once inspected and put in good sanitary condition.

"Vaults should be at once emptied—before warm weather makes such work dangerous—and thoroughly disinfected with sulphate of iron (copperas). Where these vaults are within 50 ft. of any source of water-supply—well, spring, pond, lake, or running stream—their further use should be abandoned, and, after being emptied, they should be disinfected and filled up with dry, clean earth—in itself one of the best disinfectants. The new vault should not be less than 50 ft. from the nearest water-supply; should be water-tight; ventilated by a 4-in. shaft, opening above the roof; the contents should be kept inoffensive by the daily use of dry earth or some other disinfectant; and the building and its surroundings should be kept in the cleanest attainable condition. Where practicable the substitution of the earth-closet system for the subterranean vault-storage is recommended. In either case the frequent removal of the contents, and their safe disposal, by use as a manure, are imperatively necessary sanitary measures.

"One of the most important roads in the state has already

taken the action above indicated along the entire extent of its line. This Board, in its efforts toward preventing epidemic disease and consequent interruption and loss of travel and traffic, will be glad to learn of your action in the premises, and to furnish any information or assistance in its power."

#### Kentucky Railroading.

"Do you use the block system on this road?" inquired a passenger on a train down in Kentucky.

"No, sir," replied the conductor; "we have no use for it."

"Do you use the electric or pneumatic signals?"

"No, sir."

"Have you a double track?"

"No."

"Well, of course you have a train dispatcher, and run all trains by telegraph?"

"No."

"I see you have no brakeman. How do you flag the rear of your train if you are stopped from any cause between stations?"

"We don't flag."

"Great heavens! What a way to run a railroad. A man takes his life in his hands when he rides on it. This is criminally reckless."

"See here, mister, if you don't like this railroad you can get off and walk. I am the president of this road and its sole owner. I am also the board of directors, treasurer, secretary, general manager, superintendent, paymaster, trackmaster, general passenger agent, general freight agent, master mechanic, ticket agent, conductor, brakeman and boss. This is the Great Western Railroad of Kentucky, six miles long, with termini at Harrodsburg and Harrodsburg Junction. This is the only train on the road of any kind, and ahead of us is the only engine. We never have collisions. The engineer does his own firing, and runs the repair-shop and round-house all by himself. He and I run this here railroad. It keeps us pretty busy, but we've always got time to stop and eject a sassy passenger. Do you want to behave yourself and go through with us, or will you have your baggage set off here by the haystack?"—*Chicago Herald*.

#### Discrimination in Massachusetts.

In the matter of the petition of manufacturing firms of Rochdale, Mass., to the Railroad Commissioners complaining of the high rate of freight on coal, the Commissioners have given their decision. Complainants were charged a rate of 80 cents per ton from Worcester to Rochdale, a distance of 9 miles, the reason for this high rate given by the company being the heavy grades between the two places. The board considered the question at considerable length, comparing the rates complained of with the rates charged on other roads for similar distances, and also comparing it with the rates charged on the Boston & Albany itself on coal from East Boston or from Hudson, and also with the rates offered by the company from East Boston to Rochdale, provided the manufacturers would bring them coal from one of the terminal points instead of from Worcester.

The conclusion of the board is, that complainants have a right to use what coal they please and to have it carried at reasonable rates; the carrier had no right to make a discriminating charge in order to favor its own business, or to secure a longer haul over its own road. The fact that it is the interest of the company to have coal bought at Hudson or at Boston does not give a right to discriminate against Worcester by exacting an unreasonable charge for coal sold in that city.

Finally the board informs the Boston & Albany Railroad Co. that it considers it proper, reasonable and desirable that the rates for the transportation of coal in carloads from Worcester to Rochdale be reduced by at least 25 per cent. from the present rate of 80 cents per net ton.

#### A Pass Swindler.

Mr. W. A. Carpenter, General Freight and Passenger Agent of the Detroit, Lansing and Northern road, has issued the following notice: "A number of letters purporting to have been signed by me, and requesting passes, have been presented to different roads. As such letters are unauthorized, you are requested to refuse to honor them."

#### Frozen Locomotives.

The *Locomotive Engineer's Monthly Journal* contains some remarkable statements as to the antics Jack Frost plays upon locomotives. One engineer, Brother Jones, had a heavy freight and a slipping engine one cold night. Becoming enraged at the engine on account of her inability to pull the train, he allowed her to stand and slip on her drive wheels on the icy rails. The night was now intensely cold and Bro. J.'s engine came gradually to a standstill—refusing to slip with the throttle wide open. He and the fireman went out to see what new freak possessed the infernal machine, and on arriving at the front of the engine found her frozen to the track. The exhausts had frozen as they left the stack and falling one above the other had formed a pyramid of ice from the top of the stack to the frozen ground beneath."

This is a very singular story, but in dramatic interest is surpassed by the tale told by Rory O'More, who states that on one occasion after running a double-header through a snow drift, "I found the front end stove in by the snow which we encountered in the cut." This little incident did not prevent the engine taking her train until "after running about a mile" I noticed my engine popping off in a manner which I never knew her to do before, and, strange to relate, could not hear a sound from the stack. The engineer of the following engine kept blowing me ahead. I had the throttle wide open, but no response. I called for brakes, made thorough examination of the eccentrics, links, rocker-arms, and steam chests. I was on the point of giving up in despair when the thought suggested itself to me to examine the front end. I did so. I saw nothing out of place. I looked up the inside of the stack, and in doing so I happened to rest my hand on the steam-pipe, when—judge of my surprise—it felt icy cold!"

Our more experienced readers will doubtless have anticipated the reason, a solid plug of ice had formed inside the steam pipe, and effectually blocked it up.

#### General Railroad News.

##### MEETINGS AND ANNOUNCEMENTS.

###### Meetings.

Meetings of the stockholders of railroad companies will be held as follows:

*Allegheny Valley*, annual meeting, at the office in Pittsburgh, Pa., April 14.

*Atchison, Topeka & Santa Fe*, annual meeting, at the office in Topeka, Kan., April 16.

*Chesapeake, Ohio & Southwestern*, annual meeting, at the office in Memphis, Tenn., April 6.

*Chicago & Alton*, annual meeting, at the company's office, in Chicago, April 6, at 10 a. m. Transfer books close March 14.

*Denver & Rio Grande*, meeting of the consolidated bondholders for consultation with the trustees, at No. 21 Nassau street, New York, at 1 p. m., on April 16. The annual meet-

ing of the company will be held at Colorado Springs, Col., April 6.

*Lake Shore & Michigan Southern*, annual meeting, at the office in Cleveland, O., May 6.

*Michigan Central*, annual meeting, at the office in Detroit, Mich., May 7.

*Morgan's Louisiana & Texas*, annual meeting, in New Orleans, April 6.

*New York Central & Hudson River*, annual meeting, in Albany, N. Y., April 15.

###### Dividends.

Dividends on the capital stocks of railroad companies have been declared as follows:

*Delaware, Lackawanna & Western*, 2 per cent., quarterly, payable April 20. Transfer books close April 2.

*European & North American* (leased to Maine Central), 2½ per cent., semi-annual, payable April 15.

*Pittsburgh, Fort Wayne & Chicago*, 1½ per cent., quarterly, payable on special stock April 1; on regular stock, April 7.

*Vermont & Massachusetts* (leased to Fitchburg), 3 per cent., semi-annual, payable April 7.

#### Railroad and Technical Conventions.

Meetings and conventions of railroad associations and technical societies will be held as follows:

The *General Time Convention* will meet at the Lindell Hotel in St. Louis, on Wednesday, April 8.

The *Association of American Railroad Superintendents* will hold its half-yearly meeting in Richmond, Va., on Wednesday, April 15.

The *American Association of Train Dispatchers* will hold its annual convention in Denver, Col., on Wednesday, June 3. The *Master Car-Builders' Association* will hold its annual convention at the Hygeia Hotel, Old Point Comfort (Fortress Monroe), Va., beginning on Tuesday, June 9.

The *Master Mechanics' Association* will hold its annual convention in Washington, beginning on Tuesday, June 16.

The *Car Accountants' Association* will hold its annual convention in Minneapolis, Minn., beginning on Tuesday, June 23.

The *General Baggage Agents' Association* will hold its half-yearly meeting in St. Paul, Minn., on Wednesday, July 15.

The *Master Car-Builders' Club* will hold regular meetings at its rooms, No. 113 Liberty street, New York, on the evening of the third Thursday in each month.

The *New England Railroad Club* will hold its regular meetings at its rooms in the Boston & Albany station, in Boston, on the evening of the fourth Wednesday in each month.

The *Western Railway Club* will hold regular meetings at its rooms, No. 102 Adams street, Chicago, on the third Wednesday in each month.

#### ELECTIONS AND APPOINTMENTS.

*Canadian Pacific*—The following circular is dated Montreal, March 27:

"The St. Lawrence & Ottawa Railway having been leased in perpetuity by the Canadian Pacific Railway Company, on and after March 1 tracers', junction, mileage and all reports or correspondence in connection with cars of the St. Lawrence & Ottawa Railway should be addressed to R. H. Smith, Car Accountant, at Montreal."

*Chicago, Rock Island & Pacific*—Mr. John T. Douglass has been appointed New England Traveling Agent of this road, with headquarters in Boston.

*Chicago & Western Indiana*—Mr. N. J. Clark has been appointed Auditor in place of Mr. A. S. Dunham, who has gone to the Virginia Midland road. Mr. Clark was recently connected with the Detroit, Grand Haven & Milwaukee.

*Cincinnati, Indianapolis, St. Louis & Chicago*—This company has issued the following notice: "Mr. E. F. Kelly, Assistant General Freight Agent, having resigned, Mr. W. C. Hobbs, Assistant General Freight Agent, has been transferred to Chicago, and on and after this date will have charge of the freight traffic of this company in the territory north of Lafayette, including Chicago. All communications relating to the same will be sent to him at No. 130 Washington street, Chicago, Ill. All communications relating to freight traffic from Lafayette and points south of Lafayette will be addressed to general freight office, Cincinnati, Ohio."

*Cincinnati & Muskingum Valley*—This company has elected Thomas D. Messler, President; James Buckingham, M. Churchill, W. A. Graham, J. Herdman, Charles Moran, George B. Roberts, directors; W. F. Black, Secretary and Treasurer.

*Danville & Ohio River*—The office of this new company is in Danville, Ill.; the directors are A. A. Abbott, John W. Carter, Austin Corbin, C. H. Cutler, Albert Emerson, Isaac Fenn, John J. Fletcher, W. A. Fuller, H. W. Lester, A. N. Parlins, J. W. Rogers, A. A. Speare and Charles G. Stevens.

*Denver & Rio Grande*—Mr. W. T. Hayes has been appointed Traveling Passenger Agent, with headquarters in St. Louis.

*Englewood Connecting*—The directors of this new company are C. W. Adams, Wm. Borner, W. W. Chandler, D. T. McCabe and R. Bidle Roberts, all of Chicago.

*Eutawville*—The officers of this new company are: President, R. C. Barkley; Secretary and Treasurer, H. W. Mitchell, Office at Eutawville, S. C.

*Gulf, Colorado & Santa Fe*—The new board has elected George Sealy President; R. S. Willis, Vice-President; Walter Gresham, Second Vice-President; Webster Snyder, General Manager and Chief Engineer; W. S. Davis, Secretary and Treasurer. The only change is the election of Mr. Gresham as Second Vice-President, a new office.

*Hopkins*—At the annual meeting in Carlinville, Ill., March 28, the following officers were chosen: President, Henry S. Hopkins; Secretary, Barton Smith; Treasurer, James Walker.

*Illinois Central*—The directors have re-elected Mr. William J. Mauric Secretary, and have chosen Mr. Stuyvesant Fish Treasurer, in place of Mr. L. V. F. Randolph, resigned. Mr. Fish is also Vice-President of the company and will discharge the duties of both offices.

*Indiana & Illinois Southern*—Mr. Charles H. Steel was recently appointed Receiver of this road in Illinois, and Mr. P. B. Blue has now been appointed Receiver in Indiana.

*Jacksonville & Montgomery*—The incorporators of this company are: George Crow, Wm. H. Dean, G. C. Ellis, John H. Forney, L. W. Grant, C. D. Martin, P. Rowan and Thomas A. Walker, all of Jacksonville, Alabama.

*Kansas City, Fort Scott & Gulf*—Mr. J. V. Parker has been appointed assistant general freight agent of this road and the Kansas City, Springfield & Memphis.

*Michigan Railroad Commission*—Governor Alger, of Michigan, has appointed Mr. Wm. McPherson, of Howell, Railroad Commissioner of that state, in place of Gen. Wm. P. Innes.

*Mobile & West Alabama*—This company has been organized at Mobile, Ala., by the election of the following officers: President, T. G. Bush; Vice-President, John T. Milner; directors, P. D. Barker, G. B. Clark, Thomas Henry, T. P. Miller, D. T. Barker; Secretary and Treasurer, G. E. Miller.

*New York, Chicago & St. Louis*—Mr. D. W. Caldwell has been appointed Receiver of this road. He is Vice-President of the company.

The Receiver has appointed H. H. Hammersley Cashier and M. M. Rodgers Purchasing Agent.

*New York, West Shore & Buffalo*—The following circular from the Receivers is dated New York, March 31:

"The general offices of the Receivers of the New York, West Shore & Buffalo Railway, now located in the Mills Building and 24 State street, will be removed to the Stewart Building, 280 Broadway, on Monday, April 20 next. Agents and others will carefully observe that all their communications, after that date, are addressed accordingly."

General Manager Layng has issued the following, also dated March 31:

"In order to provide for more economical working, taking effect Wednesday, April 1, the railway between Weehawken and Buffalo will be consolidated into two divisions: that portion of the Mohawk Division lying between Frankfort and Syracuse will be absorbed by the Buffalo Division, and the portion between Frankfort and Coeymans by the Hudson River Division. Between East Buffalo and Suspension Bridge will be operated as a separate division, known as the Niagara Falls Division, as heretofore."

"The organization will be as follows: Hudson River Division, Weehawken to Frankfort, J. P. Bradfield, Acting Superintendent, with office at Weehawken, N. J. Buffalo Division, Frankfort to Buffalo, D. B. McCoy, Superintendent, with office at Newark, N. Y. Niagara Falls Division, East Buffalo to Suspension Bridge, W. J. Murphy, Joint Superintendent, with office at Buffalo, N. Y."

"The Superintendent of the Hudson River Division will be assisted by two roadmasters, one located at Kingston, in charge of the line between Cornwall and Albany, including yard at Coeymans Junction, and one with his office at Frankfort, in charge of the line between Coeymans Junction and Frankfort, including Frankfort yard. The jurisdiction of the roadmaster of the Buffalo Division will be extended over the entire new division."

*New York, Philadelphia & Norfolk*—Mr. W. H. Dunne has been appointed Superintendent, in place of Mr. James McConkey, resigned, with headquarters at Cape Charles, Va.

*New York, Woodhaven & Rockaway*—Mr. William E. Burroughs has been appointed Master of Transportation and Mr. William Leseur Master Mechanic of this road.

*Oregon Railway & Navigation Co.*—Mr. J. J. Byrne has been appointed General Passenger and Ticket Agent, with office in Portland, Ore. He has been for some time past connected with the Michigan Central road.

*Pensacola & Memphis*—The incorporators of this company are: A. T. Loudon, H. C. Tompkins, Montgomery, Ala.; John C. Avery, Sewell C. Cobb, S. S. Harney, L. H. Sellars, S. U. Von Praag, Pensacola, Florida.

*Ridgefield & New York*—The officers of this company are: Elwood Burdsall, President; W. J. Mead, Vice-President; H. K. Scott, Treasurer. Office at Ridgefield, Conn.

*St. Louis & Northeastern*—The directors of this new company are: B. K. Durfee, Lucius L. Burrows, B. O. McReynolds, John K. Warren, Decatur, Ill.; Kent Hamilton, Toledo, O.; Francis A. White, New York.

*Toledo, Columbus & Southern*—The incorporators of this company are: T. P. Brown, Wm. T. Walker, Toledo, O.; Samuel R. Follett, Findlay, O.; Israel B. Mason, Providence, R. I.; Francis A. White, New York.

*United States Commissioner of Railroads*—Gen. Joseph E. Johnston, of Virginia, has been appointed Commissioner of Railroads in the Interior Department, in place of W. E. Armstrong, resigned.

#### PERSONAL.

—Mr. James McConkey has resigned his position as Superintendent of the New York, Philadelphia & Norfolk road.

—Mr. Charles Blackwell has resigned his position as Superintendent of Motive Power of the Norfolk & Western and the Shenandoah Valley roads.

—Mr. L. V. F. Randolph has declined a re-election as Treasurer of the Illinois Central Co., and will, it is understood, go into other business. Mr. Randolph has been with the company for many years in various capacities.

—Mr. Alexander R. Lawton, who has been appointed United States Minister to Russia, has been for a number of years a director of the Central Railroad & Banking Co., of Georgia, and was also General Counsel for the company.

—Mr. Day K. Smith, having resigned his position as Superintendent of the South Park Division of the Union Pacific on account of ill health, was presented by a number of friends along the line with a purse containing \$400 in gold. The presentation was made at Como, Colo., March 26, and was accompanied by a very flattering testimonial of esteem.

—Mr. Edgar T. Smith, formerly Assistant Superintendent on the Buffalo Division of the New York, West Shore & Buffalo road, and recently Superintendent of the Weehawken terminal station, has resigned that position and gone to Albuquerque, N. M., where he will be connected with the construction department of the Atlantic & Pacific road.

—About a month ago, Charles Cooke, Chief Clerk in the office of the Treasurer of the Florida Railway & Navigation Co., disappeared, and at the same time a package containing \$8,000 in currency was missed from the office. Detectives were at once placed on his trail, and after following him all over the South, finally succeeded in capturing him last week in Houston, Tex., and at once started to take him back to Florida for trial.

—Mr. Thomas Hilliard, Roadmaster of the Buffalo, New York & Philadelphia road, died of pneumonia in Titusville, Pa., March 31, aged 66 years. Mr. Hilliard had been engaged in the construction and maintenance of railroads for nearly 40 years, having been connected with the old Auburn & Rochester, and several of the other roads now included in the New York Central, the Erie, the Michigan Southern, and the Oil Creek & Allegheny River, now part of the Buffalo, New York & Philadelphia.

—Col. E. L. Bostwick died March 6, at his residence near Tomah, Wis. He was born in Woodstock, N. Y., and had been for many years connected with railroads, serving in the road departments of the New York Central, the Michigan Central and other roads. He was Superintendent of Construction of the Kansas City bridge, and later Roadmaster of the Chicago, Dubuque & Minnesota. He was Superintendent of Construction of the Wisconsin Valley line, and Roadmaster for several years after its completion. For several years past he has lived on his farm.

—Mr. Walter Freeman, who has been for many years the Freight Agent of the United Railroads of New Jersey, has been appointed Commissioner of the "Soft Coal Pool." Upon his resignation of the former office the Pennsylvania Railroad directors passed the following very complimentary resolution:

"Resolved, That in accepting the resignation of Mr. Walter Freeman, Division Freight Agent United Railroads of New Jersey Division, who entered the service of the Camden & Amboy Railroad & Transportation Co. over 36 years ago, and who has been with the Pennsylvania Railroad Co. since the lease of the United Companies' works, the board of directors desire to express their appreciation of the fidelity and zeal with which he has performed his duties with the several companies for so many years, and especially with this company, and their hope for his continued success in his new field of labor as Soft Coal Commissioner between the Baltimore & Ohio Railroad Co. and the Pennsylvania Railroad Co."

—General Anson Stager, who for some time past has been suffering from a number of complaints, including Bright's disease, died in Chicago, March 26. He was born in Ontario County, N. Y., April 20, 1825. He began life as a printer. In 1846 he was a telegraph operator. In 1852 he was appointed superintendent of the lines of the Mississippi Printing Telegraph Co. He took a prominent part in organizing various lines and interests leased by and consolidated with the Western Union Telegraph Co.; and upon the organization of that company he was made its General Superintendent. In 1861 he was appointed by the Secretary of War as Chief of the United States Military Telegraph. He organized the military telegraph, and was commissioned colonel and assigned to duty in the War Department, and was brevetted brigadier-general at the close of the rebellion. At the close of the war he resumed his position as General Superintendent of the Western Union Co., which post he retained until the consolidation of the Western Union and the American Union companies, when he retired from active service.

—Mr. Perry H. Smith died at his residence in Chicago, March 29. Mr. Smith was born in Augusta, N. Y., in 1828. He studied law, and soon after being admitted to the bar went West and settled in Appleton, Wis., where he practiced successfully, and when still a young man was elected judge and afterward a member of the Legislature. In 1857 Mr. Smith became a director and Vice-President of the Chicago, St. Paul & Fond du Lac Co., and when that company afterward became a part of the Chicago & Northwestern Mr. Smith was made Vice-President of the consolidated company, of which Mr. William B. Ogden was then President. In 1860 he removed from Wisconsin to Chicago, and was the chief managing officer of the company until his resignation in 1869. He then retired from business, but was still actively engaged in the management of his large fortune and in politics. He was a close personal friend of Mr. Samuel J. Tilden, and was mainly instrumental in securing his nomination for the Presidency in 1876. Nearly three years ago Mr. Smith's health began to fail, and his mental condition was also affected so that it became necessary to appoint a conservator to take charge of his property. His death was unexpected, as for a short time past there had been apparently an improvement in his general condition.

#### TRAFFIC AND EARNINGS

##### Railroad Earnings.

Earnings of railroad lines for various periods are reported as follows:

|                           | 1885.     | 1884.     | Inc. or Dec. | P.c.  |
|---------------------------|-----------|-----------|--------------|-------|
| Canadian Pacific.         | \$824,341 | \$499,283 | I. \$325,058 | 65.1  |
| Net earnings...           | 151,128   | 266,597   | I. 417,725   | -6.1  |
| E. Ten., Va. & G.         | 590,220   | 638,380   | D. 39,139    | -6.1  |
| Net earnings...           | 284,803   | 102,732   | I. 92,071    | 47.8  |
| L. Rock & Ft. S.          | 97,951    | 81,473    | I. 16,480    | 20.2  |
| Lt. Rock, M. R. & Tex.    | 64,647    | 58,013    | I. 6,634     | 11.4  |
| N. Y., L. Erie & Western. | 2,680,067 | 3,003,605 | D. 377,538   | 12.3  |
| Net earnings...           | 406,463   | 321,904   | I. 82,471    | 25.5  |
| N. Y. & N. England        | 456,517   | 495,649   | D. 39,139    | -7.9  |
| Net earnings...           | 123,287   | 57,177    | L. 60,110    | 115.6 |
| Norfolk & West.           | 420,631   | 438,377   | D. 11,746    | 3.0   |
| Net earnings...           | 176,362   | 171,380   | L. 5,082     | 3.0   |
| Phila. & Reading.         | 3,641,011 | 4,198,142 | D. 557,131   | 13.3  |
| Net earnings...           | 1,243,667 | 1,397,758 | D. 154,091   | 11.0  |
| West Jersey...            | 127,064   | 130,486   | D. 9,422     | 6.9   |
| Net earnings...           | 25,951    | 50,606    | D. 24,655    | 48.7  |
| Month of January:         |           |           |              |       |
| Chi. & East Ill.          | \$127,034 | \$125,424 | I. \$1,610   | 1.3   |
| Net earnings...           | 54,647    | 51,220    | I. 3,427     | 6.7   |
| Month of February:        |           |           |              |       |
| Canadian Pac.             | \$400,577 | \$224,638 | I. \$175,939 | 78.2  |
| Net earnings...           | 60,423    | *130,227  | I. 205,650   | -70.0 |
| Chi. & Ohio...            | 218,143   | 260,072   | D. 47,979    | 19.0  |
| Net earnings...           | 36,417    | 67,022    | D. 30,605    | 45.7  |
| E. Ten., Va. & G.         | 311,894   | 326,392   | D. 8,498     | 2.6   |
| Net earnings...           | 111,878   | 114,795   | D. 2,017     | 2.5   |
| Eliz., Lex. & B. S.       | 45,682    | 45,948    | I. 2,734     | 5.9   |
| Net earnings...           | 13,633    | 8,293     | L. 5,340     | 64.3  |
| Kentucky Cent...          | 55,395    | .....     | .....        | ..... |
| Net earnings...           | 7,611     | .....     | .....        | ..... |
| L. Rock & Ft. S.          | 44,985    | 37,021    | I. 7,964     | 21.5  |
| L. R. M. R. & T.          | 31,004    | 25,638    | I. 5,366     | 20.9  |
| N. Y., L. Erie & Western. | 1,371,624 | 1,496,384 | D. 124,760   | 8.3   |
| Net earnings...           | 237,827   | 238,221   | D. 2,391     | 1.0   |
| N. Y. & N. England        | 220,067   | 252,803   | D. 26,766    | 10.5  |
| Net earnings...           | 73,495    | 49,248    | I. 33,247    | 82.6  |
| Norfolk & West.           | 196,281   | 225,357   | D. 29,076    | 13.0  |
| Net earnings...           | 72,806    | 88,008    | D. 15,202    | 17.0  |
| Phila. & Reading.         | 1,794,645 | 2,002,342 | D. 207,687   | 10.4  |
| Net earnings...           | 640,266   | 638,625   | I. 1,641     | 0.3   |
| West Jersey...            | 56,944    | 67,186    | D. 10,242    | 16.2  |
| Net earnings...           | 7,293     | 25,706    | D. 18,413    | 7.6   |
| Third week in March:      |           |           |              |       |
| Chi. & Alton...           | \$150,458 | \$167,892 | D. \$8,434   | 5.0   |
| Chi. & East Ill...        | 40,532    | 25,180    | I. 15,352    | 61.0  |
| Chi. & N. W.              | 439,100   | 407,200   | I. 31,900    | 7.8   |
| Chi. & P. Min. & Omaha... | 106,400   | 110,100   | D. 3,700     | 3.3   |
| Chi. & St. L. & Chi...    | 53,004    | 46,319    | I. 6,685     | 14.5  |
| Det. Lan. & No.           | 20,661    | 23,950    | D. 5,298     | 20.4  |
| Ind., Bloom. & W.         | 60,221    | 43,504    | I. 16,627    | 37.8  |
| Illinois Central...       | 239,400   | 294,612   | I. 32,188    | 15.7  |
| Iowa Lines...             | 37,000    | 36,022    | I. 978       | 2.7   |
| Louisv. & Nashv.          | 280,615   | 270,658   | I. 9,957     | 3.7   |
| Mil. L. S. & W.           | 23,400    | 25,470    | D. 2,070     | 8.1   |
| Mil. & Northern...        | 11,875    | 10,742    | I. 1,133     | 10.6  |
| Peoria, Dec. & E.         | 13,500    | 14,390    | D. 890       | 6.2   |
| St. Jo. & Western         | 33,004    | 32,272    | I. 732       | 2.3   |

\* Deficit.

Weekly earnings are usually estimated in part, and are subject to correction by later statements. The same remark applies to early statements of monthly earnings.

##### Cook.

Coal tonnages for the week ending March 21 are reported as follows:

|                       | 1885.   | 1884.   | Inc. or Dec. | P.c. |
|-----------------------|---------|---------|--------------|------|
| Anthracite...         | 435,49  | 361,865 | I. 73,594    | 20.3 |
| Eastern bituminous... | 161,288 | 166,567 | D. 5,283     | 3.1  |
| Coke...               | 48,251  | 58,215  | D. 9,064     | 17.2 |

The anthracite trade is in a very unsettled condition, al-

though the agreement has been fairly well carried out so far, and the gain made by the Pennsylvania Railroad has not been greater than was expected. The chief disturbing element is the condition of the Reading and the uncertainty as to the continuance of the New Jersey Central lease.

The coal tonnage of the Pennsylvania Railroad for the week ending March 21 was :

|                            | Coal.   | Coke.  | Total.  | P.c.    |
|----------------------------|---------|--------|---------|---------|
| Line of road . . . . .     | 120,885 | 47,019 | 167,904 | 183,423 |
| From other lines . . . . . | 82,413  | 1,232  | 83,645  | 75,307  |
| Total . . . . .            | 203,298 | 48,251 | 251,549 | 258,820 |

Year to March 21 . . . . . 2,213,007 521,586 2,734,683 2,700,193

Decrease for the week, 7,271 tons, or 2.8 per cent.; for the year, 55,420 tons, or 2.0 per cent.

In February the Southwest Virginia Improvement Co. mined 38,295 tons of coal at Pocahontas, Va., making 78,055 tons to Feb. 28. There were 29,227 tons shipped and 7,720 made into coke in February.

Cumberland coal shipments for the three months ending March 28 are reported by the Cumberland *Citizen* as follows:

|                                | 1885.   | 1884.   | Inc. or Dec. | P.c. |
|--------------------------------|---------|---------|--------------|------|
| Baltimore & Ohio R. R. . . . . | 421,537 | 371,768 | I. 49,760    | 13.4 |
| Pennsylvania R. R. . . . .     | 50,205  | 69,093  | D. 18,888    | 27.4 |
| Ches. & Ohio Canal . . . . .   | 704     | 3,095   | D. 3,291     | 82.3 |
| Total . . . . .                | 472,446 | 444,856 | I. 27,590    | 6.2  |

Local deliveries are included in the Baltimore & Ohio tonnage. Shipments from mines were: Cumberland & Pennsylvania road, 319,908; George's Creek & Cumberland, 57,833; West Virginia Central & Pittsburgh, 98,035; total, 475,775 tons.

Actual tonnage passing over the Huntingdon & Broad Top road for the three months to March 28 was:

|                           | 1885.  | 1884.   | Decrease. | P. c. |
|---------------------------|--------|---------|-----------|-------|
| Broad Top coal . . . . .  | 38,287 | 46,621  | 8,334     | 17.8  |
| Cumberland coal . . . . . | 53,498 | 74,443  | 20,945    | 28.2  |
| Total . . . . .           | 91,785 | 121,064 | 29,279    | 24.2  |

The Broad Top coal is mined on the line; the Cumberland carried through for the Pennsylvania Railroad.

The coal tonnage of the Chesapeake & Ohio Railroad for the two months to Feb. 28 was:

|                 | 1885.   | 1884.   | Inc. or Dec. | P. c. |
|-----------------|---------|---------|--------------|-------|
| Coal . . . . .  | 183,045 | 137,932 | I. 45,123    | 32.7  |
| Coke . . . . .  | 18,232  | 10,766  | 7,466        | 69.2  |
| Total . . . . . | 201,277 | 148,688 | 52,589       | 35.3  |

The increase was in all classes of coal—cannel, gas and steam coals—mined on the line.

The anthracite coal tonnage of the Belvidere Division for the three months to March 28 was:

|                                     | 1885.   | 1884.   | Inc. or Dec. | P. c. |
|-------------------------------------|---------|---------|--------------|-------|
| S. Amboy for shipment . . . . .     | 111,294 | 124,120 | D. 14,826    | 11.8  |
| Local points on N. J. divs. . . . . | 211,258 | 195,229 | I. 16,029    | 8.2   |
| Co.'s use . . . . .                 | 57,177  | 46,494  | I. 10,683    | 53.2  |
| Total . . . . .                     | 370,729 | 367,843 | I. 11,886    | 3.2   |

Of the total this year 302,194 tons were Lehigh, and 77,535 tons Wyoming coal.

##### Cotton.

Cotton movement for the week ending March 27 is reported as follows:

|                           | 1885.   | 1884.   | Inc. or Dec. | P. c. |
|---------------------------|---------|---------|--------------|-------|
| Receipts . . . . .        | 20,206  | 33,107  | D. 12,800    | 38.8  |
| Shipments . . . . .       | 32,278  | 52,680  | D. 20,402    | 38.5  |
| Stock, March 27 . . . . . | 158,175 | 141,236 | I. 16,939    | 12.0  |

*Seaports:*

|  | Receipts . . . . . | Exports . . . . . | Stock, March 27 . . . . . |
| --- | --- | --- | --- |
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up through Chester, and, by an entirely new route which has been laid out, passes through Darby, crossing Woodland avenue in that borough, then passes through Paschalville, and diverging towards the Schuylkill crosses it by a new drawbridge between Gibson's Point and Point Breeze. It then crosses diagonally over the lowlands of the Neck to the Delaware River, where about 1,400 or more feet of frontage has been secured not far from Dickinson street wharf. Some piers exist there at present, but they are to be improved and extended, making a first-class terminal, whence freight cars on floats can be ferried across to the Jersey Central's line in South Camden. We understand that the land for this new Baltimore & Ohio line has been secured all the way from Chester up to the Schuylkill River crossing, and also across the Neck, the titles being taken in the names of third parties, and that the obstacles invoked against the old route cannot be used in obstructing this one. It will, however, probably be a freight road chiefly, as the plan does not at present contemplate a passenger station in the heart of the city, although the expectation is that this will ultimately be secured through an extension to the Reading lines over some route not yet indicated."

**Boston & Lowell.**—This company has made a reduction, taking effect April 1, in the passenger tariff from Woodsdale to Concord on the White Mountain Division, of from 4 cents to 3½ cents a mile, and with round trip tickets at 3 cents a mile. Above Woodsdale, where the rate is now about 5 cents a mile, round trip tickets will be sold at 3½ cents per mile. On the Northern Division and all its branches, including Concord & Claremont, the passenger rate has been reduced from 3½ cents to 3¼ cents a mile, with round trip tickets at 3 cents a mile. The company has also made a general reduction of freight tariffs on its White Mountain Division which will average 25 per cent., and which will go into effect May 1. A contract has been closed, with figures at \$105,000, for relaying, as soon as the snow disappears, the entire track from Woodsdale to Fabryns with new steel rails and frogs and safety switches. An entire new equipment will be put on for White Mountain business, including eight new Pullman cars.

**Buffalo, New York & Philadelphia.**—The proposed plan of readjustment has been definitely abandoned, a large majority of the stockholders having refused to join in it. A new plan is now being prepared, which is to be submitted shortly. It is probable that the Amsterdam stockholders will send over a committee to investigate the company's affairs.

**Calumet River.**—This company has been incorporated to build a branch from the Chicago, St. Louis & Pittsburgh road along the Calumet River in South Chicago. It will be about 8 miles long, with many spurs and sidings.

**Canadian Pacific.**—The earnings and expenses for February, and for the two months from Jan. 1, have been:

|                   | February.       | Two months.     |
|-------------------|-----------------|-----------------|
| Earnings.....     | 1885. \$400,577 | 1884. \$224,638 |
| Expenses.....     | 334,154         | 363,965         |
| Net earnings..... | \$66,423        | \$139,327       |

It is said that the agreement which will probably be adopted will provide that the company shall issue \$400,000 in bonds secured upon the road and the land, that the government shall surrender the guarantees to which the company consented last year in exchange for a deposit of \$5,000,000 to enable it to meet pressing demands, and to give it time to negotiate the \$15,000,000 which will remain and which will be sufficient to complete the road. This arrangement, it is thought, would re-establish the credit of the company without requiring new contributions from the stockholders.

Montreal dispatches say that this company has notified the Canadian government that, if aid is not extended to the road in some form, all construction work will have to be stopped. The company has about \$7,000,000 in notes maturing between now and June 1, but it has no money with which to pay them. The company will not submit any further plans to the government, leaving it to say in what form it shall be extended, if at all. It is understood that the government is desirous of helping the company, but it is very doubtful whether Parliament will approve any further grants.

**Central Iowa.**—This company has issued a circular to holders of the bonds of the various divisions, asking them to exchange their bonds and unpaid coupons as soon as possible for the new consolidated bonds of the company, and to fund one-half the coupons on the new bonds for two years in the same bonds. The consolidated bonds will be given for the divisional bonds at par and for the funded coupons at 75. The circular states that the October interest is already in default and that the company has no money with which to pay the April coupons. There is also a funded debt of about \$400,000, a considerable part of which is pressing for payment.

**Central, of New Jersey.**—The Reading Co. as lessee having failed to make the required payments, default was made April 1 on the coupons then due on the first-mortgage bonds and on the car-trust payments.

**Central and Southern Pacific.**—The statement is authorized by officers of the Central Pacific Railroad Co. that a contract for the lease of the Central Pacific to the Southern Pacific Co. for 99 years, had been practically agreed upon. The contract, it was stated, will probably take effect April 1. It provides that the Southern Pacific Co. shall assume all of the obligations of the Central Pacific, pay all taxes, and the interest on the bonded and floating debts of the last-named company. The Central Pacific is to receive in addition, as rental, a minimum sum of \$1,200,000 a year, and so much more as the surplus earnings may justify up to \$3,600,000. The last-mentioned sum is equivalent to 6 per cent. upon the present capital stock of the Central Pacific, the system of which includes also certain leased roads in California.

Separate accounts of the earnings and expenses of the Southern Pacific and the Central Pacific are to be kept, but the administration of both will be concentrated. All of the roads west of the El Paso are to be known as the Pacific Division of the Southern Pacific Railway System. A. N. Towne will be its General Manager, and A. C. Hutchinson will be General Manager of the division east of El Paso. The executive officers of the consolidated corporation will be: President, Leland Stanford; First Vice-President, Collis P. Huntington; Second Vice-President, Charles Crocker. The capital stock of the lessor company is \$100,000,000, and the company, it is said, owns stocks and bonds of the different properties included in the combination to an aggregate amount exceeding that sum.

The reasons for making this important lease are stated in the preamble to the contract, and are substantially as follows: It appears that part of the business heretofore done by the Central Pacific Railroad from Ogden to the waters of the Pacific has been diverted by the Northern Pacific, the Atlantic & Pacific, and the Atchison, Topeka & Santa Fé roads, and that the Union Pacific Co. has secured control of the Oregon Short Line and thereby secured an outlet to the Pacific over Oregon roads without using the Central Pacific. In

order to maintain itself against such diversions, the Central Pacific, it is claimed, should be allied and operated, in connection with a friendly line, through to the waters of the Atlantic. The Southern Pacific Co. has secured the control of such a line for a term of 99 years between the Bay of San Francisco and Gulf ports, with the use of steamships thence to New York, available for through traffic. Each of the contracting companies having large local traffic on their respective lines, harmony between them is deemed important, and the Central Pacific gains protection against a diversion of the through business, while at the same time both are to be operated, it is declared, so as to secure their rights to each, without one gaining any benefit or advantage at the expense of the other.

Should a changed state of affairs occur, whereby injury is done to either party interested, it is provided that the terms may be changed by reference of all questions to arbitrators, who shall interpret according to the intent of the parties, that substantial justice be done, and that neither shall be benefited at the expense of the other.

It appears that the company to which the lease is made is not, as might be supposed, the Southern Pacific Railroad Co., but a corporation recently organized as the Southern Pacific Co. This corporation has already taken leases of what is generally known as the Southern Pacific line, including the property of the Southern Pacific Railroad companies in California, Arizona and New Mexico, the Galveston, Harrisburg & San Antonio, the Texas & New Orleans, the Louisiana Western and Morgan's Louisiana & Texas, making up the line from San Francisco to New Orleans. The incorporators of this Southern Pacific Co. are the chief owners of the Central Pacific stock, but the company itself does not own any of that stock. In other words, instead of the Central Pacific operating its own line and the Southern Pacific Railroad, both lines are to be leased and operated by a corporation owning no road, but organized for the purpose of operating the line, and which will take all the receipts and assume all the liabilities of both lines. The organization may be said to resemble somewhat the Pennsylvania Co., except in the fact that in that case the stock of the operating company is owned by the Pennsylvania Railroad Co. It resembles more closely the Manhattan Co., which leases and operates the elevated railroad in New York.

**Chicago & Eastern Illinois.**—The gross and net earnings since July 1 have been:

|                        | Gross earnings—<br>1884-85. \$857,742 | Net earnings—<br>1884-85. \$400,090 |
|------------------------|---------------------------------------|-------------------------------------|
| July 1 to Dec. 31..... | 127,034                               | 51,220                              |

Total seven months....\$984,776

The decrease in gross earnings for the seven months was \$12,597, or 1.3 per cent.; in net earnings, \$50,501, or 10.0 per cent.

**Chicago, Milwaukee & St. Paul.**—Following is the circular of the directors of this company, issued to the stockholders on the occasion of the reduction in the dividend rate:

"For five successive years, this company has earned and paid to its stockholders 7 per cent. in dividends, on both the preferred and common stock; and the earnings for the year 1884 show net earnings equivalent to 7 per cent. on both classes of the stock, out of which there has been already paid 3½ per cent. It has been the desire of our company to continue the same rate of dividends for the future. At a meeting of the board of directors this question was fully considered, and the policy of reducing the dividend on the common stock to 5 per cent. has been determined on as conservative and judicious, in view of the fact that the company owes a floating debt which should either be paid off or otherwise liquidated before return to a higher rate of dividend takes place.

"The excellent condition of the property, its low cost, and the growth and development of the country through which the road passes, give great confidence to the directors in its future income."

"The directors feel the importance of economical and conservative management, and they hope and believe that the policy now adopted will meet the approval of the stockholders."

This company is already preparing for summer passenger travel, and gives notice that on May 1 it will begin the sale of its usual summer tourist round-trip tickets for the season, offering the choice of a great number of routes. The sale of these tickets will continue until Sept. 30, and they will be good until Oct. 31.

**Chicago & Ohio River.**—This company has filed articles of incorporation for a railroad from Danville, Ill., to Olney, 110 miles. The intention is to buy the Danville, Olney & Ohio River, and the corporators are the persons engaged in reorganizing that company.

**East Tennessee, Virginia & Georgia.**—The gross and net earnings since July 1 have been as follows:

|                        | Gross earnings—<br>1884-85. \$2,129,343 | Net earnings—<br>1884-85. \$855,039 |
|------------------------|---|-------------------------------------|
| July 1 to Dec. 31..... | 287,326                                 | 172,925                             |

February.....311,894

Total 8 months....\$2,728,503

\$2,947,355

\$1,130,842

\$1,264,795

For the eight months this shows a decrease in gross earnings of \$218,802, or 7.5 per cent., and in net earnings of \$124,953, or 9.9 per cent. The Receiver is incurring only such expenses as are absolutely necessary.

**Englewood Connecting.**—This company has been incorporated to build a short line between the Pittsburgh, Fort Wayne & Chicago and the Chicago, St. Louis & Pittsburgh roads in the outskirts of Chicago.

**Eutawville.**—This company has been organized to build a railroad from Eutawville, S. C., southward to the South Carolina Railroad near Ridgerville. The distance is about 25 miles.

**Fort Worth & Denver.**—Track laying continues to be actively pushed on this road and at latest accounts the rails were laid for a distance of 10 miles from the old terminus at Wichita Falls, Tex. The grading is well advanced toward the new terminus at Harrold.

The earnings and expenses for February, and for the four months of the fiscal year from Nov. 1, have been:

|               | February.      | Four months.   |
|---------------|----------------|----------------|
| Earnings..... | 1885. \$24,519 | 1884. \$28,286 |

Expenses.....15,100

Net earnings.....\$9,419

\$6,953

\$51,983

\$54,221

For the four months the decrease in gross earnings was

\$21,503, or 16.4 per cent., and in net earnings \$2,238, or 4.1 per cent.

**Fitchburg.**—The bill authorizing this company to purchase the Boston, Barre & Gardner road, by the issue of common stock at the rate of 1 share for 10 of the stock of the purchased road, has been introduced in the Massachusetts Legislature, and is now before the Railroad Committee. It is opposed by the representatives of two or three of the towns which own stock in the road, and they do not oppose the consolidation, but only think that the town should get a better

price for its stock. They may succeed in postponing the bill till next year, but this, however, will make very little difference, as the Fitchburg Co. already holds the controlling interest, and there is nothing to prevent the continuance of the operating agreement lately made from year to year. The city of Worcester, which is the largest stockholder, has accepted the terms offered, and the opposition comes from the small towns.

**Green Bay, Winona & St. Paul.**—The fact that the Union Trust Co., on taking possession of this road for the bondholders, designated as its Agent and Manager Mr. G. Campbell, who was recently on the Wisconsin Central road, gave rise to a report that the road was to be managed in the interest of that company. This report is, however, denied by the officers of the company, who say that they have nothing whatever to do with the action of the trustee, and that Mr. Campbell was selected as agent chiefly on account of his experience as a superintendent in the section of the country through which the Green Bay road runs, and his acquaintance with the country. The bonds of the road are chiefly owned in New York, by the estate of Moses Taylor and by Mr. Samuel Sloan and associates, who are very little, if at all, interested in the Wisconsin Central.

**Houston & Texas Central.**—Is reported that Mr. C. P. Huntington's proposition to the holders of bonds, now under consideration, is to fund the coupons for two years on all the bonds into five-year debentures bearing 3 per cent. interest, and then scale down the interest on the first-mortgage bonds to 6 per cent., on the second to 4 per cent., on the third to 3 per cent. The bondholders' committee are said to be willing to accept these terms, except that they insist on 5 per cent. interest on second-mortgage bonds.

**Indiana & Illinois Southern.**—Mr. Charles H. Steele was recently appointed Receiver for the section of this road in Illinois and Mr. P. P. Blue has now been appointed Receiver for the road in Indiana by the courts of that state. The road is reported to be in a wretched condition, so that it is impossible to run trains over it except at the very lowest speed, and in some places the track is so bad that it is unsafe to run trains over it at all. The Receiver in Illinois is authorized to issue certificates to the amount of \$100,000 for the purpose of putting the road in repair, but no action has yet been taken in Indiana.

**Indianapolis, Decatur & Springfield.**—This company, or rather the Trustee in possession, gives notice that the April coupons on the first-mortgage bonds cannot be paid in full. The Trustee offers to pay one-half in cash and one-half in certificates, payable from future earnings.

**Lake Erie & Western.**—A meeting of the stockholders of this company was held in Bloomington, Ill., March 29, for the purpose of ratifying the consolidation of this company and the Lake Erie & Mississippi. The last named company was recently organized to build the extension of the road to Peoria. No action could be taken, however, as an injunction was served upon the meeting. This injunction was issued at the suit of the holders of income bonds of the old Lafayette, Bloomington & Muncie Co., who have filed a bill charging that by consolidation the security of their bonds will be impaired. The bill charges also that the Peoria extension will cost only \$10,000 per mile, but that it is proposed to issue bonds upon it at the rate of \$25,000 per mile, the surplus to be used to pay floating debts of the company. The bill asks for the appointment of a receiver for the road. The injunction was granted temporarily, pending further hearing in the case.

**Lake Shore & Michigan Southern.**—This company, in connection with the New York Central, is making arrangements to reduce the time of its fast trains between New York and Chicago. The time on the limited trains east-bound will be cut down 3 hours and west-bound about 2½ hours. The time on the other express trains will also be reduced about an hour, the object being to bring the fast trains into closer competition as to time with the Pennsylvania and the Baltimore & Ohio.

A meeting of the board was held in New York, March 27, but no action was taken in regard to declaring a dividend. No statement was published by the board.

**Little Rock & Fort Smith.**—The earnings of this road for February were \$44,985. During the month the company sold 2,605 acres of land, for \$10,431; against 2,210 acres for \$10,431 in February last year.

**Mexican Central.**—The discovery of coal on the line of this road near Jimulco is a matter of great importance to the company, as fuel is both scarce and expensive on the line and most of the coal burned has hitherto been brought from New Mexico and Colorado. The coal has been tested in the locomotives of the company and found to burn very well, and the only question at present is whether the deposit is of sufficient extent to pay for systematic working. This can only be determined by further explorations.

**Mexican Railroad Notes.**—The following notes are from the Mexican Financier of March 21:

On the Tampico Division of the Mexican Central the contract grading work was finished as far as Abra de Caballeros at the end of February. The rails were laid to kilometer 153.

The general survey of the railroad from Zacatecas to Jerez and Villanueva has been completed and the exact line to be pursued through the mountain ridge is now being traced. Plans for the first 10 kilometers will soon be subjected to the Department of Public Works for approval.

**Mineola & Pittsburgh.**—Arrangements are being made to build a narrow-gauge road from Mineola, Tex., eastward to Pittsburgh, to connect with the Texas & St. Louis road. The distance is about 40 miles, and committees have been appointed to secure subscriptions to the stock, each of the two towns promising to raise one-half of the amount needed.

**Missouri Pacific.**—Through the intervention of the Executive Committee of the Brotherhood the difficulty between this company and the locomotive engineers, which at one time threatened to result in a strike, has been settled in a friendly manner, and the agreement with the engineers is to be strictly adhered to.

**Mobile & West Alabama.**—This company has been organized to purchase the Mobile & Alabama Grand Trunk road, and to extend the line to the coal fields in Walker County, Ala. The intention is to build the road through eventually to the Tennessee line. The Grand Trunk road is completed from Mobile to Bigbee Bridge, 59 miles, but it has not been operated for several years and will probably have to be almost entirely rebuilt.

**New York, Chicago & St. Louis.**—In Cleveland, O., March 28, a suit was begun in the Court of Common Pleas to foreclose the second mortgage on this road. The complaint is filed by the Union Trust Co., of New York, and C. A. O. McLellan, trustees under the mortgage. The total amount of bonds authorized under this mortgage was \$10,000,000, of which about \$6,846,000 have been issued, \$5,800,000 having been pledged as collateral for loans, although \$1,046,000 were sold. The complaint represents that the company has a floating debt of about \$4,000,000, against which its available

assets are only about \$1,000,000. The Court appointed a receiver, pending further proceedings in the case, selecting Mr. D. W. Caldwell, Vice-President of the company, for that position. This proceeding was generally accepted.

The first-mortgage bondholders meet in New York this week to select a committee to take measures to protect their interests. Default was made on the interest due April 1 on the equipment bonds.

**New York, Lake Erie & Western.**—This company makes the following statement for February and the five months of the fiscal year from Oct. 1 to Feb. 28, the figures including 68 per cent. of earnings and the entire working expenses of the leased New York, Pennsylvania & Ohio Railroad:

|          | February    | Five months |
|----------|-------------|-------------|
| Earnings | \$1,371,624 | \$1,496,394 |
| Expenses | 1,135,797   | 1,258,173   |

Net earnings... \$235,827 \$238,231 \$1,872,476 \$2,096,783

For the five months the decrease in gross earnings was \$1,650,653, or 17.4 per cent.; in expenses, \$1,426,346, or 19.3 per cent., and in net earnings, \$224,307, or 10.7 per cent.

The company also gives the following statement for the Erie lines proper, excluding the earnings and working expenses of the New York, Pennsylvania & Ohio Railroad:

|          | February    | Five months |
|----------|-------------|-------------|
| Earnings | \$1,139,740 | \$1,233,409 |
| Expenses | 849,532     | 925,062     |

Net earnings... \$290,208 \$308,347 \$1,843,248 \$2,255,405

This shows for the five months a decrease of \$1,392,694, or 18 per cent., in gross earnings, and of \$412,157, or 18 per cent., in net earnings. A comparison of the two statements shows that for the five months this year the 68 per cent. of gross earnings of the leased road amounted to \$1,493,037 and the working expenses to \$1,463,809, making a gain of \$29,228 on the lease.

**New York & New England.**—The Receiver's statement gives the following figures for February and the five months of the fiscal year from Oct. 1 to Feb. 28:

|          | February  | Five months |
|----------|-----------|-------------|
| Earnings | \$226,097 | \$22,2,603  |
| Expenses | 152,662   | 212,355     |

Net earnings... \$73,495 \$40,248 \$318,577 \$89,603

Per cent. of exps... 67.5 84.1 72.3 93.5

This shows for the five months a decrease in gross earnings of \$130,064, or 9.4 per cent.; a decrease in expenses of \$389,038, or 29.9 per cent., and a resulting gain of \$258,974, or 28.1 per cent., in net earnings.

**New York, West Shore & Buffalo.**—For operating purposes, this road will hereafter be divided in two divisions, one extending from Cornwall to Frankfort, 168 miles, and the other from Frankfort to Buffalo, 201 miles. The principal shops of the company, it will be remembered, are located at Frankfort. For freight runs, these divisions will be subdivided, probably at Coeymans Junction and Newark.

The Bondholders' Committee, after long consideration, have devised a plan for the reorganization of the company, which is submitted to the holders of its securities. The plan is very elaborate in its details, its main points being as follows :

1. The issue of \$25,000,000 new first-mortgage bonds, to have 50 years to run, at 5 per cent. interest, and to cover all property of the company. These bonds are to be sold or otherwise disposed of and their proceeds used to take up receiver's certificates, satisfy judgments, acquire the ownership of the terminal properties, ferries, and dispose of their prior liens.

2. The issue of \$25,000,000 first-preferred stock, entitled to 6 per cent. dividends if earned. This stock to be exchanged for present first-mortgage bonds and overdue coupons, each bondholder to receive \$11,000 of this stock in exchange for each \$1,000 bond. Any of this stock, which will be due the bondholders but which may be refused by them, is to be sold and the proceeds paid over to the bondholders.

3. The issue of \$15,000,000 of second preferred stock to settle the claims of the North River Construction Co. and the New York, Ontario & Western Railroad Co., and such other floating debt claims as may not be preferred liens.

4. Common stock is to be issued to an amount not to exceed \$40,000,000, or so much less as may be needed to exchange for the common stock of the present company.

Under this plan, while the company will have \$135,000,000 of securities, it is claimed that the only fixed charge of the company will be the interest on the new first-mortgage bonds, amounting to \$1,250,000 yearly, as interest upon all the other classes of securities will not be payable unless earned. The execution of the agreement, including the purchase of the road and the reorganization of the new company, is to be intrusted to a committee of five gentlemen, none of whom are connected with the present management, or with the North River Construction Co. The members of the committee as named in the plan are Hon. Abram S. Hewitt, Mr. William Dowd, Robert Harris, Gen. George B. McClellan, and Mr. Alex. E. Orr.

**Norfolk & Western.**—This company's statement for February and the two months ending Feb. 28 is as follows :

|                   | February  | Two months |
|-------------------|-----------|------------|
| Gross earnings... | \$196,281 | \$25,357   |
| Expenses.....     | 123,475   | 137,349    |

Net earnings... \$72,806 \$88,008 \$176,362 \$171,380

Per cent. of exps... 63 61 58 61

For the two months the gross earnings decreased \$11,746, or 3 per cent., and the expenses \$16,728, or 6 per cent., leaving a gain of \$4,982, or 3 per cent., in net earnings.

**Northern Pacific.**—This company notifies connecting lines that its Yellowstone Park Branch, from Livingston, Mont., to Cinnabar, has been reopened for the season, and that regular trains are now running over it and through tickets will be sold to various points in the Park.

**Oregon Pacific.**—It is reported that this road has been sold to Mr. Jay Gould, whose object is to extend it to a connection with the Oregon Short Line. The road has track laid from Yaquina Bay, Ore., eastward to Corvallis, 70 miles, and was probably built with the intention of selling it.

**Pennsylvania.**—Notice is given that a stock vote will be taken at the company's office in Philadelphia, June 30, on the question of approving or disapproving the modification of the trust for the purchase of securities of controlled lines proposed in the New York report. At present the payments to the trust are \$600,000 yearly. The proposed change is to reduce the appropriation to an amount equal to 1 per cent. of the net income of the company before payment of dividends to the shareholders. On this basis the payment for 1884 would have been \$86,000, instead of \$600,000. On Dec. 31 last the total payments into the trust had been \$3,700,000, which, with the income therefrom, had been invested in securities having a par value of \$4,423,750, yielding an interest of over 6½ per cent. on the investment. The

main object of this trust has been attained and the directors recommended a reduction in the payment. There is very little doubt that stockholders will approve.

**Philadelphia & Reading.**—The Master has been taking testimony at considerable length on the application of the Receivers for permission to pay the amounts due on the New Jersey Central rent. A number of witnesses have been heard.

The following is the agreement which the Reading managers propose to have the secured floating debt holders enter into :

"In response to the proposition of the Philadelphia & Reading Railroad Co. to extend the time of payment of their accrued floating debt, we will, in case the consent to this agreement of holders of not less than nine-tenths (which nine-tenths are said to amount to \$8,500,000) is obtained, agree as follows :

"During three years from April 1, 1885, we will accept renewals of the obligations which we at present hold, with the same indorsers, the first notes to be drawn at three months' date from those now maturing, with like renewals from time to time, interest at the rate of 6 per cent. per annum to be paid at the time of each renewal, thus making interest payable quarterly in advance.

"We will hold the collateral now pledged with us, as one general collateral, as security for the payment of the debt due to us in whole or in part, until the whole of said debt is discharged, unless otherwise hereafter arranged by mutual consent.

"In the event of the Philadelphia & Reading Railroad Co. failing at any time punctually to pay the interest upon any of the obligations hereby agreed to be renewed, or to cause the same to be renewed, or in the event of this plan not being assented to by the prescribed proportion of the floating debt holders, or an adverse judicial sale being made, our obligation to accept further renewals shall immediately cease."

The Receivers' statement gives the following figures for the earnings of the railroad for February and the three months of the fiscal year from Dec. 1 to Feb. 28:

|          | February    | Three months |
|----------|-------------|--------------|
| Earnings | \$1,794,645 | \$2,002,342  |
| Expenses | 1,134,370   | 1,363,717    |

Net earnings. \$640,266 \$638,625 \$2,164,678 \$2,283,315

The decrease in gross earnings for the two months was \$539,211, or 8.3 per cent.; in net earnings, \$118,637, or 5.2 per cent. The traffic for the year was as follows:

|                         | February  | Three months |
|-------------------------|-----------|--------------|
| Passengers              | 1,480,965 | 1,627,296    |
| Tons freight            | 510,768   | 665,488      |
| Tons coal               | 723,807   | 713,853      |
| Tons coal on colliers.. | 44,854    | 41,770       |

The statement for the Philadelphia & Reading Coal & Iron Co. is as follows :

|          | February  | Three months |
|----------|-----------|--------------|
| Earnings | \$669,621 | \$566,779    |
| Expenses | 1,009,813 | 1,047,556    |

Deficit... \$40,192 \$90,777 \$150,591 \$288,554

For the three months the gross earnings decreased \$157,022, or 5.1 per cent. The expenses were lower, and the deficit decreased \$137,963, or 47.7 per cent.

The coal mined from the company's lands was :

|                    | February | Three months |
|--------------------|----------|--------------|
| By Coal & Iron Co. | 302,099  | 262,180      |
| By tenants.....    | 54,844   | 45,173       |

Total..... 356,943 307,362 1,077,679 1,05,823

The joint net earnings of the two companies compare as follows :

|                      | February  | Three months |
|----------------------|-----------|--------------|
| By N. R. R. Co.      | \$640,366 | \$638,025    |
| Deficit, C. & I. Co. | 4,192     | 90,777       |

Total net.... \$600,074 \$547,848 \$2,014,087 \$1,944,761

Increase for the month, \$52,226, or 9.5 per cent.; for the three months, \$69,326, or 3.6 per cent.; due entirely to the reduction of expenses. The expenses above do not include anything for interest or rentals, the net earnings being the sum from which those charges are to be paid.

The Philadelphia Ledger of April 1 says : "The situation of the Reading Railroad was again the subject of chief financial discussion in this city yesterday, more particularly with reference to its April payments. We are informed that the Receivers are in sufficient funds to make all the company's own payments maturing to-day for mortgage interest. These are \$94,500 interest on the second mortgage 7s, and \$280,920 on the improvement mortgage 6s. They also expect to furnish \$170,000 this week for the court deposit in the matter of the New Jersey Central Railroad tax case. The Receivers yesterday paid off the final amount of about \$30,000 due on account of the advance of the general mortgage interest last July. These April payments aggregate about \$575,000, and the money to make them has been largely borrowed. The Reading has had a fair coal business during March, and, as the Receivers have only had to meet the company's working expenses and floating debt interest, the close of the month found them with some funds at bank, estimated about \$110,000. The officers of the company for several days past have been gathering up coal notes from their customers and agents in various parts of the country, and this paper was yesterday discounted at various banks in this city to an amount approximating \$500,000. They are thus put in funds to make their April payments. It seems to be definitely understood, however, that nothing will be paid by the Reading Receivers on account of the New Jersey Central's April payments, excepting in the tax matter, and a New Jersey receivership therefore imprints. The additional acceptances of the Reading's plan of settlement yesterday received did not greatly increase the total above the \$21,000,000 heretofore announced. The time for accepting expired yesterday, but no power of compulsion exists, and now every one is waiting to see what will be done next, it being generally understood that the plan of settlement threatens to fail because the general mortgage holders have not to an extent approved it. There are said to be indications of some effort to make a modification that would be acceptable to the Bartol committee, but we could learn nothing definite yesterday. The 90 days' grace on the unpaid January coupon of the general mortgage has expired, and the general mortgage holders can now push foreclosure proceedings on this account if they wish."

**Pittsburgh & Western.**—The Receivers have made application to the United States Circuit Court for leave to borrow \$210,000, to pay employees' wages and other pressing claims. Default was made April 1 on the coupons then due on the Pittsburgh, Bradford & Buffalo firsts.

**Ridgefield & New York.**—An effort is being made to revive this project and to build the road, which is to extend from Ridgefield, N. Y., northward to the New York & New England near Danbury, Conn., a distance of 32 miles.

**Rochester & Pittsburgh.**—The Referee in the foreclosure suit has completed his report and filed it with the court. He finds that there are \$9,615,000 second mortgage

bonds outstanding, that interest was paid on \$25,000 only, Aug. 1, 1884, and on the remainder interest is unpaid from Feb. 1, 1884. The total amount due April 1 for principal and interest is \$2,797,300. On these bonds and overdue coupons A. Iselin & Co., of New York, hold \$1,464,830, Walston H. Brown & Bros., of New York, \$765,535, George F. Stone, New York, \$160,500. The balance are held by 34 different persons, in amounts varying from \$1,000 to \$50,000. The bonds owned by Brown Bros. are pledged to various banks to secure loans.

**St. Johnsbury & Lake Champlain.**—It is reported that the Boston & Lowell Co. will lease this road, which extends from Lunenberg, Vt., to Swanton, and has a connection with the Odgensburg & Lake Champlain at Rouse's Point.

**St. Louis & Northeastern.**—This company has filed articles of incorporation for a railroad from East St. Louis across Illinois to the Indiana line. The route described is that of the Toledo, Cincinnati & St. Louis, and the incorporation is probably for the use of the purchasers of that road whenever the main line shall be sold.

**Shenandoah Valley.**—An informal meeting of the heaviest holders of the Shenandoah Valley Railroad bonds was held at the company's office in Philadelphia, March 26. The chairman was given instructions to appoint a committee consisting of three first mortgage bondholders, three general mortgage bondholders, the President of the company, Sidney F. Tyler, and himself, to examine the affairs of the road and determine what course should be adopted to insure the interests of the bondholders. The action was taken with a view to the general reorganization of the company.

**Shenango & Allegheny.**—The Receiver has obtained authority from the court to borrow \$35,000 to pay the April coupons on the \$1,000,000 first-mortgage bonds, from which it would appear that the road had not earned the interest.

**Toledo, Ann Arbor & North Michigan.**—This company is making arrangements to build an extension of its road from St. Louis, Mich., northward 18 miles into the pine forests. The object is to secure lumber as a return freight for the cars which now go north from Toledo loaded with coal.

**Toledo, Columbus & Southern.**—This company has been incorporated by the bondholders, who recently bought the Toledo & Indianapolis road at foreclosure sale. As soon as the organization is completed, it will operate the road, which will be known under this name.

**Troy & Boston.**—A report that this company was about to build a branch from Green Island to Schenectady, to connect with the West Shore road, is contradicted by the officers of the company.

**Troy & Greenfield.**—The latest bill presented to the Massachusetts Legislature provides for the organization of a company which is to buy this road from the state for \$6,000,000 payable in stock, and is also to acquire the Fitchburg, the Boston & Albany, the Central Massachusetts and such other roads as may be necessary to make up a through line from Boston to Chicago.

**Union Terminal Co., of Buffalo.**—This company, of which a good deal has been said lately, was organized to own and improve the terminal property in the city of Buffalo, which is used jointly by the New York, West Shore & Buffalo and the Buffalo, New York & Philadelphia companies. It has already acquired possession of the property owned in the city by both companies, including some valuable land, and intends to purchase in addition certain parcels of land upon which a passenger station is to be built. The improvements already upon the property owned include extensive yards in which there are already over 35 miles of side-track, and a frontage on the city ship canal on which there are already erected trestles and piers sufficient to deliver to vessels over 300,000 tons of coal yearly. The yard property also has a frontage on the Buffalo River. The land acquired from the Buffalo, New York & Philadelphia is owned by the terminal company in fee; that acquired from the West Shore is held under a lease of 499 years, the only rental payable being an obligation to furnish to the West Shore terminal facilities, at such proportion of the cost of operating the terminal property as its use by the West Shore bears to the entire use. The company has executed a mortgage on the property for \$2,000,000, of which \$1,000,000 have been issued, and the remaining \$1,000,000 in bonds have been held to be used in building the passenger station and making other improvements.

**Western Counties.**—The proposition made by the syndicate, represented by Mr. F. H. Clergue, to complete and operate this road in connection with the Windsor & Annapolis is now under consideration by the Nova Scotia government, and a conference is to be held this week at which it is expected that a final agreement will be reached. The syndicate has come to terms with the Windsor & Annapolis Co. and that company is ready to join in the arrangements.

**West Jersey.**—This company's statement for February and the two months ending Feb. 28 is as follows :

|          | February | Two months |
|----------|----------|------------|
| Earnings | \$56,944 | \$67,186   |
| Expenses | 49,651   | 41,480     |